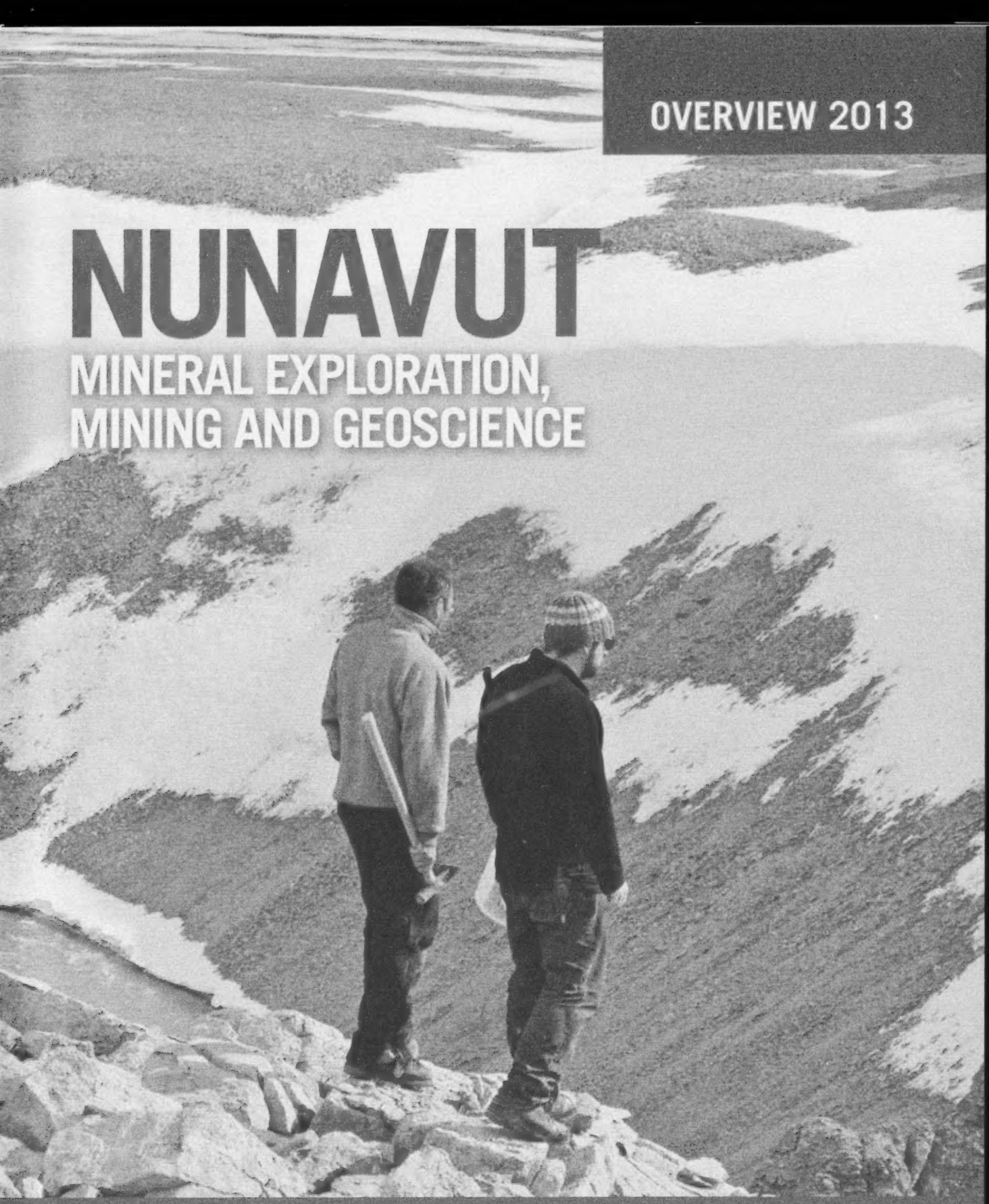
OVERVIEW 2013

# NUNAVUT

## MINERAL EXPLORATION, MINING AND GEOSCIENCE



Aboriginal Affairs and Northern Development Canada
Affaires autochtones et Développement du Nord Canada

# Table of Contents


Land Tenure in Nunavut ..... 3

Aboriginal Affairs and Northern Development Canada ..... 4

Government of Nunavut ..... 6

Nunavut Tunngavik Incorporated ..... 12

Canada-Nunavut Geoscience Office ..... 14

Summary of 2013 Exploration Activities

- Kitikmeot Region ..... 18
  - Base Metals ..... 20
  - Gold ..... 22
  - Inactive Projects ..... 28
- Kivalliq Region ..... 30
  - Base Metals ..... 32
  - Diamonds ..... 32
  - Gold ..... 33
  - Uranium ..... 38
  - Inactive Projects ..... 41
- Qikiqtani Region ..... 44
  - Base Metals ..... 46
  - Coal ..... 47
  - Diamonds ..... 48
  - Iron ..... 50
  - Inactive Projects ..... 55

Guide to Acronyms ..... 56

Glossary ..... 57

Index ..... 58


## About the *Nunavut: Mining, Mineral Exploration and Geoscience Overview 2013*

This exploration overview is a combined effort of four partners: Aboriginal Affairs and Northern Development Canada (AANDC), Government of Nunavut (GN), Nunavut Tunngavik Incorporated (NTI), and Canada-Nunavut Geoscience Office (CNGO). The intent of this publication is to capture information on exploration and mining activities in 2013 and to make this information available to the public.

We thank the many contributors who submitted data and photos for this edition. Prospectors and mining companies are welcome to submit information on their programs for inclusion in next year's publication. Feedback and comments are appreciated.

## Note to Readers

This document has been prepared based on information available at the time of writing. All resource and reserve figures quoted in this publication are derived from company news releases, websites, and technical reports filed with SEDAR (www.sedar.com). Readers are directed to individual company websites for details on the reporting standards used. The authors make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document.

All exploration information was gathered prior to December 2013. All projects with active status in this publication completed and reported on exploration work during the 2012 or 2013 field season. Inactive projects did not have exploration work done in 2012 or 2013, but may have active mineral tenure as shown on NT GeoViewer, and valid Land Use Permits and Water Licenses as issued by AANDC and the Nunavut Water Board, respectively.

With reference to the use of the term *National Instrument 43-101 (NI 43-101)*: This is an industry standard outlining rules and guidelines for reporting and disclosing scientific and technical information about mineral projects. This standard is supervised by the Canadian Securities Administrators.


## Acknowledgements

The 2013 Exploration Overview was written by the Mineral Resources Division at AANDC's Nunavut Regional Office (Matthew Senkow, Alia Bigio, and Paul Budkewitsch). Contributions were received from David Mate and colleagues at CNGO, Keith Morrison (NTI), and Linda Ham (GN). Cartography by Tat Ma and data support from Steve Sharpe (both AANDC).


## In Memoriam

Eric Prosh, Ph.D., P.Geo., died on September 3, 2013. Eric worked for the Government of Nunavut's Department of Economic Development and Transportation since 2006, most recently as Director of Minerals & Petroleum Resources. Eric contributed to geoscience in Nunavut in many ways, including to this annual *Nunavut: Mining, Mineral Exploration and Geoscience Overview* publication. He is greatly missed by his numerous friends and colleagues.

*Cover photo: Geologists on site at the Storm project, Somerset Island*
*Courtesy of Aston Bay Holdings Ltd.*

The territory of Nunavut was created in April 1999 as a result of the Nunavut Land Claims Agreement, the largest Aboriginal land settlement in Canadian history. Spanning two million square kilometres (km$^2$), the territory has 25 communities and approximately 36,000 people. Inuit represent 85 per cent of Nunavut's population, creating the foundation of the territory's culture and values. This culture is inherently connected to the land, shaping government, business, and day-to-day life.

In addition to the creation of the territory, the Nunavut Land Claims Agreement gave Inuit fee simple title to 356,000 km$^2$ of land. There are 944 parcels of Inuit Owned Lands (IOL) where Inuit hold surface title only (surface IOL). The Government of Canada or "the Crown" retains the mineral rights to these lands. Inuit also hold fee simple title, including mineral rights, to 150 parcels of IOL (subsurface IOL), which total 38,000 km$^2$ and represent approximately two per cent of the territory. Surface title to all IOL is held in each region by one of the three Regional Inuit Associations (RIAs) while title to subsurface IOL is held and administered by Nunavut Tunngavik Incorporated (NTI). NTI issues rights to explore and mine through its own mineral tenure regime. For both surface and subsurface IOL, access to the land must be obtained from the appropriate RIA.

The Crown administers mineral rights to 98 per cent of Nunavut. Aboriginal Affairs and Northern Development Canada (AANDC) manages these rights through the *Northwest Territories and Nunavut Mining Regulations.* Land use permits for activities on Crown land are issued by AANDC under the *Territorial Land Use Regulations.*

Significantly, the Nunavut Land Claims Agreement is a final settlement whereby all land claims in Nunavut have been settled with the Inuit of Nunavut, thus providing an unmatched level of land tenure certainty.

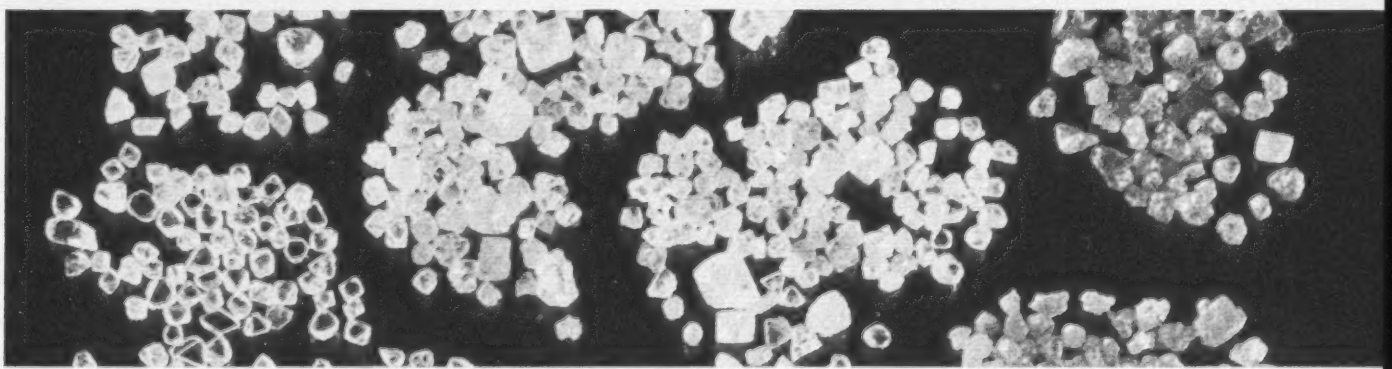
For more information on the location of IOL and Crown land in the territory, refer to the *Nunavut Mineral Exploration, Mining and Geoscience Active Projects 2013 Map.*

**MINERAL AND EXPLORATION TENURE IN GOOD STANDING IN NUNAVUT** *Source: AANDC*

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Permits | 464 | 1,875 | 2,267 | 1,395 | 1,057 | 1,041 | 394 | 477 | 314 | 259 | 196 |
| Claims | 7,560 | 10,138 | 9,644 | 6,707 | 7,905 | 8,088 | 7,613 | 7,178 | 6,777 | 6,066 | 5,658 |
| Leases | 263 | 271 | 332 | 352 | 354 | 479 | 590 | 631 | 567 | 627 | 701 |

**WHO IS DOING THE WORK?** *Source: Natural Resources Canada, October 2013*

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Juniors (Millions $) | 48.5 | 107.9 | 132.5 | 161.8 | 237.4 | 261.4 | 56.9 | 125.0 | 163.0 | 129.0 | 93.5 |
| Seniors (Millions $) | 44.2 | 79.6 | 46.2 | 48.8 | 100.6 | 171.2 | 130.7 | 131.7 | 372.6 | 293.5 | 155.4 |
| **Total** | **92.7** | **187.5** | **178.7** | **210.6** | **338** | **432.6** | **187.6** | **256.7** | **535.6** | **442.5** | **248.9** |



A selection of colour-sorted rough diamonds from the Chidliak project's CH-6 bulk sample. – *Courtesy of Peregrine Diamonds*

Aboriginal Affairs and Northern Development Canada | Affaires autochtones et Développement du Nord Canada

Aboriginal Affairs and Northern Development Canada (AANDC) supports Northern Canadians in their efforts to improve social and economic well-being, to develop healthier, more sustainable communities, and to participate more fully in Canada's political, social, and economic development. AANDC continues its focus on creating jobs and long term prosperity across the North.

Natural resources are an important part of Canada's economy and the North, two-fifths of Canada's land mass, has tremendous resource potential. This makes the North a place of incredible economic opportunity for northerners and all Canadians.

The *Northern Jobs and Growth Act* is an important part of moving forward with the Government of Canada's vision for the North. To be globally competitive, northern regulatory processes need to provide for timely, efficient, and effective project reviews; strengthened environmental protection; and respect for Aboriginal consultation obligations.

Improvements to the regulatory regime in Nunavut will provide a highly efficient "single-entry" system which enshrines the concept of a "one project, one review" approach for major project proposals. These improvements will add clarity and predictability to the land use planning and environmental assessment processes in Nunavut.

The *Nunavut Planning and Project Assessment Act*:

- Adds detail and clarity in defining what types of activities constitute a project;
- Improves efficiency, with the Nunavut Planning Commission becoming the entry point into the review process for all project proposals in order to verify conformity with existing land use plans;
- Provides greater predictability with timelines instituted at key decision points;
- Creates a comprehensive enforcement scheme for land use planning and environmental assessment processes; and
- Establishes enforceable project certificates at the conclusion of each review, issued by the Nunavut Impact Review Board.

Other improvements to the regulatory regime in Nunavut include administrative amendments to the existing Territorial Land Use Regulations and Territorial Quarrying Regulations. This will improve consistency for companies and regulators. Amendments to the Territorial Land Use Regulations will increase the duration of land use permits from two years up to five years, will allow more time for consultation on Class B land use permit applications, and will allow the use of new technologies, such as satellite imagery, in the final report for land use permits. Amendments to the Territorial Quarrying Regulations will increase the permit duration from one year up to three years, and will include new definitions of terms and metrification of Imperial units.

AANDC is also working to complete the modernization of the mineral tenure provisions of the Northwest Territories and Nunavut Mining Regulations with the goal to create two new federal regulations: the "Northwest Territories Mining Regulations" and the "Nunavut Mining Regulations." Final consultation through pre-publication of the regulatory package in *Canada Gazette I* occurred between June 19, 2013 and August 28, 2013. The new regulations are expected to be in effect on April 1, 2014.

The new Nunavut Mining Regulations will then be amended to enable the replacement of ground staking in Nunavut with online mineral claim selection. A first round of consultation on the Nunavut regulations occurred from September to November 2012. Stakeholder feedback is currently being compiled and a consultation through pre-publication in *Canada Gazette I* is expected to occur in July 2014 with implementation of online mineral claim selection expected by March 2015.

On April 18, 2013, new Nunavut Waters Regulations were registered and came into effect. These regulations reflect the economic, operational, and administrative realities of Nunavut and maintain high standards of environmental protection.

AANDC's Nunavut Regional Office works in partnership with the Government of Nunavut, Institutions of Public Government, and Inuit Organizations to enhance capacity and knowledge sharing in the territory. Since 2008, AANDC's Regional Office has had a formal partnership with the Kivalliq Inuit Association to monitor baseline water quality in areas of the Kivalliq Region where there is the potential for mineral development. The intent of this partnership is for AANDC to build upon its role as a manager of water resources and to assist the Kivalliq Inuit Association in their ability to exercise the Inuit Water Rights established in the Nunavut Land Claims Agreement. In addition to baseline water sampling, AANDC and the Kivalliq Inuit Association are cooperating to provide training opportunities, and to establish a cumulative effects monitoring framework for the Baker Lake watershed.

Within the Nunavut Regional Office, AANDC hosts the Nunavut General Monitoring Plan Secretariat. Through targeted investments, the Nunavut General Monitoring Plan coordinates monitoring projects across the territory, identifies gaps where monitoring needs to take place, and will provide reports to increase public access to ecosystemic and socio-economic information. The Nunavut General Monitoring Plan is a partnership mandated by the Nunavut Land Claims Agreement and overseen by a steering committee comprised of AANDC, on behalf of the Government of Canada, the Nunavut Planning Commission, the Government of Nunavut and Nunavut Tunngavik Incorporated.

In addition to this progress made on regulatory reform and monitoring, in 2013, AANDC continued its role as an advocate for sustainable development in the territory through its land administration, water management, environmental management, mineral development, field operations, and socioeconomic monitoring responsibilities.

### Our Work by the Numbers

In 2013, in the Nunavut region, AANDC:

- Issued 23 prospecting permits, bringing the total number of existing prospecting permits in the territory to 196.
- Issued 61 mineral claims (as of November 1, 2013), four new mineral leases and no new coal licenses.
- Issued 23 land use permits and granted 27 extensions, bringing the current number of active permits to 188. These numbers are a strong indicator of steady exploration and development activity in the territory, as are the 46 quarry permits also issued this year.
- Provided detailed comments, advice, and technical review to the Nunavut Impact Review Board for environmental assessment reviews of seven major project proposals.
- Provided technical advice to the Nunavut Water Board in the assessment of more than 70 water licence applications, amendments, and renewals.
- Inspected 236 land and water authorizations associated with exploration camps, mines, and research camps and inspected five municipal water licences.
- Completed quarterly inspections of major projects such as active mines and advanced exploration projects.

According to statistics released by Natural Resources Canada current as of September 2013, it is estimated that $248.9 million was spent on exploration and deposit appraisal in Nunavut this year. That places Nunavut fifth in Canada in terms of overall investment, after Ontario, British Columbia, Quebec, and Saskatchewan. Based on 2013 statistics, approximately 9,976,561 ha (99,766 km$^2$) of Crown land in Nunavut is covered by prospecting permits, mineral claims, coal licences, and mineral leases. This equals about five per cent of Nunavut's land area.

### Contacts

**Nunavut Regional Office**
PO Box 2200, Iqaluit, NU X0A 0H0
t: 867 975 4500 • f: 867 975 4276

**Resource Management Directorate**
Karen Costello, Director
t: 867 975 4546 • e: karen.costello@aandc.gc.ca

Murray Ball, Manager, Water Resources
t: 867 975 4550 • e: nunavutwaters@aandc.gc.ca

James Neary, Acting Manager, Impact Assessment
t: 867 975 4549 • e: nunavutenvironment@aandc.gc.ca

**Mineral Resources**
e: nunavutminerals@aandc.gc.ca

Matthew Senkow, Manager, Mineral Resources
t: 867 975 4290

Paul Budkewitsch, District Geologist
t: 867 975 4292

**Archives Orders**
t: 867 975 4293 • f: 876 975 4276
e: nunavutarchives@aandc.gc.ca

**Lands and Contaminated Sites Directorate**
e: landsmining@aandc.gc.ca

Jeff Mercer, Manager, Land Administration
t: 867 975 4280

Becky Leighfield, Mining Recorder
t: 867 975 4281 • f: 867 975 4286

**Field Operations (Inspections, Compliance and Enforcement)**
Erik Allain, Manager
t: 867 975 4295 • e: erik.allain@aandc.gc.ca

**Nunavut General Monitoring Plan**
e: NGMP.PSGN@aandc-aadnc.gc.ca
t: 855 897 6988
**www.ngmp.ca**

**Website**
**www.aandc-aadnc.gc.ca/nu**

The Government of Nunavut (GN), through the Department of Economic Development and Transportation (EDT), is committed to building and supporting a territory-wide strong and diversified mineral resource industry, based on best practices of sustainable development and partnerships between Nunavummiut and industry. The department includes several divisions that deal with resource management, related policies, and with industry; the two most involved are the Minerals and Petroleum Resources Division (MPR) and the Energy Secretariat. With one operating mine in Nunavut (Agnico-Eagle Mines Ltd.'s Meadowbank gold mine), a number of advanced development projects, and numerous discoveries, there are many resource-related opportunities on Nunavut's horizon. EDT is working to ensure that all Nunavummiut are in a position to benefit from these opportunities and is committed to ensuring that residents have opportunities to be full participants in future development in Nunavut.

Exploration and mining companies operate worldwide and could therefore choose to invest elsewhere. EDT works with its partners at Nunavut Tunngavik Incorporated and the Government of Canada to ensure that the business environment (legislative, policy, and regulatory) of Nunavut is efficient, internationally competitive, and attractive to investors. There is a significant level of exploration and mining activity in Nunavut, with substantial spending by both major multinational mining companies and junior exploration companies. This robust economy and investment in the territory by the mining sector is a strong vote of confidence in Nunavut's mineral potential, its regulatory system, and the commitment of its people.

Both MPR and the Energy Secretariat have their headquarters in Iqaluit, with the MPR having Resident Geologist Offices in Arviat and Cambridge Bay. EDT has regional offices in Kugluktuk, Rankin Inlet, Pond Inlet, and Pangnirtung. MPR works in six major areas:

Caribou, Kivalliq region – *Courtesy of AANDC*

(1) geoscience, (2) resource management, (3) prospector development, (4) community education and awareness, (5) investor confidence, and (6) development partnership agreements management.

### GEOSCIENCE

The GN remains strongly committed to public geoscience as a means of encouraging new exploration opportunities. EDT provides core funding to the Canada-Nunavut Geoscience Office (CNGO) and program support for the CNGO's territorial mapping and research projects. One of the programs recently undertaken that involved both direct EDT work and collaboration with the CNGO was the Nunavut Carving Stone Deposit Evaluation Program.

#### CARVING STONE DEPOSIT EVALUATION PROGRAM

The Nunavut Carving Stone Deposit Evaluation Program began in 2010 and is scheduled to continue until March 2014. It is a collaborative project between EDT geological and technical staff and the CNGO, and is funded by the Canadian Northern Economic Development Agency (CanNor) and GN-EDT. The objectives of this territory-wide project are to locate and evaluate new carving stone deposits and assess their artisanal suitability and potential to supply nearby communities. As part of this work, a graduate student from the University of Manitoba is examining the styles and characteristics of the carving stone deposits at Aberdeen Bay, west of Kimmirut. Data collected will be distributed via an interactive web database. Site materials are also collected for archival, analytical and exhibition purposes.

Fieldwork from the fourth and final year of the program was completed this past summer. Through this multi-year program, ninety-six carving stone resource sites in total were evaluated; these sites are located near communities in all three regions of Nunavut. Each year, work involved initial community consultations followed by field evaluation visits with local carvers and guides in the summer field seasons. All of Nunavut's 25 communities have been consulted as part of the program.

To date, the program has more than doubled the number of significant deposits of carving stone in Nunavut. The raw material most preferred by Nunavut carvers is dark-coloured, soft serpentinite. Carving stone deposits range in size from small localities containing hundreds of kilograms to large deposits containing thousands of kilograms.

The Carving Stone Evaluation Program has confirmed two undeveloped deposits on Baffin Island with enough stone to be used regionally, and two more undeveloped deposits

Carvers examining carving stone from the Kovic deposit, near Repulse Bay – *Courtesy of Government of Nunavut*

on the mainland containing enough stone to be used across the territory. All four deposits contain good- to excellent-quality carving stone. Pangnirtung's recently opened Opingivik quarry, with tidewater access, has the stone quality, volume of material, and geographical location to become East Baffin's next regional supplier of carving stone. The other three undeveloped resources are the Koonark deposit, inland from Pond Inlet at Mary River; the Kingora deposit, inland from Hall Beach and Igloolik on the Melville Peninsula; and the Kovic deposit, inland from Repulse Bay in the Kivalliq Region.

Fieldwork, in 2013, focused on known or potential deposits around the communities of the Kitikmeot region and around Sanikiluaq, on the Belcher Islands.

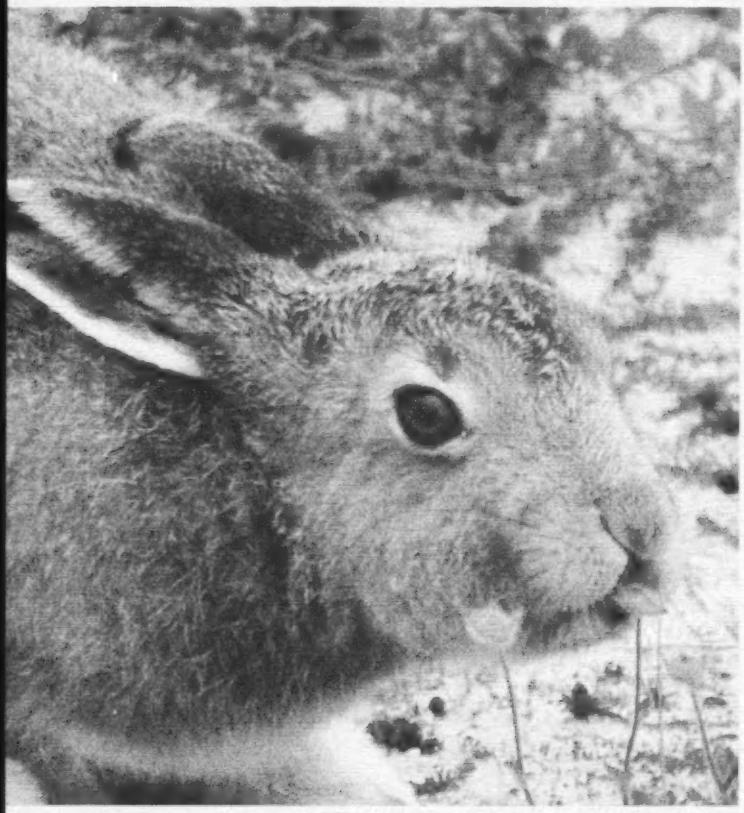
A short field program in collaboration with the Qikiqtani Inuit Association and CNGO focused on the Korok Inlet quarry. This quarry has two pits that have provided the arts communities of Cape Dorset, Kimmirut, and Iqaluit with high-quality carving stone for over four decades. Both pits at Korok Inlet have been worked to depth and there may not be any more material available. Further testing and stripping will be required to reach additional potential surface-accessible carving stone.

MPR is reporting results from the Carving Stone Deposit Evaluation program back to economic development officers, communities, the Nunavut Arts and Crafts Association, Regional Inuit Organizations, and government and scientific agencies. With the new resources found, 20 of Nunavut's 25 communities now have accessible carving stone. Arviat, Chesterfield Inlet, Grise Fiord, Repulse Bay and Whale Cove remain impoverished for carving stone resources.

### URANIUM POLICY STATEMENT

The Government of Nunavut's *Uranium Policy Statement* was released in 2012. See the document in full at **www.uranium.gov.nu.ca**. In brief, according to the policy, the GN supports safe and responsible development of uranium, subject to the following principles:

- The GN supports development that provides substantive and sustainable benefits to Nunavut without harming the environment.
- It is recognized that uranium mining places special responsibilities on governments as mining of this resource raises environmental, health, moral, and political questions that are distinct from other resources.
- The GN recognizes the jurisdictions of the Nunavut Impact Review Board and the Nunavut Water Board as established by the Nunavut Land Claims Agreement in the regulation of uranium exploration and mining.
- Additionally, it is recognized that uranium is subject to international agreements and national laws, and the government supports the mandate and responsibilities of the Canadian Nuclear Safety Commission.
- Uranium mined in Nunavut shall be used only for peaceful and environmentally responsible purposes.
- Nunavummiut must be the major beneficiaries of uranium exploration and mining activities. Uranium exploration and mining must have the support of Nunavummiut, with particular emphasis on communities close to any uranium development.
- The health and safety of workers involved in uranium exploration and mining and all Nunavummiut shall be protected to national standards.
- Environmental standards, especially for the land, water, and wildlife, must be assured for uranium exploration and mining.



Arctic hare near Wager Bay – *Courtesy of AANDC*

### MINERAL EXPLORATION AND MINING STRATEGY

The goal of *Parnautit: The Nunavut Mineral Exploration & Mining Strategy* is: "To create the conditions for a strong and sustainable minerals industry that contributes to a high and sustainable quality of life for all Nunavummiut." *Parnautit* was released in 2007 and remains the GN's framework of policies and actions to encourage mineral discovery and development in Nunavut. The four pillars of the strategy address: (1) the territory's regulatory and taxation regimes, (2) workforce training, (3) infrastructure development, and (4) environmental baseline data availability.

### RESOURCE MANAGEMENT

#### SOCIO-ECONOMIC IMPACT ASSESSMENT AND MONITORING

The Government of Nunavut participates in the environmental assessment review of resource development through the Environmental Assessment Review Team. Two committees, the Environmental and Human Health Assessment Committee and the Socio-Economic Assessment Committee, carry out the team's work. Each committee reviews environmental impact statements submitted to the Nunavut Impact Review Board and actively participates in technical meetings, hearings, and regulatory workshops. The Avatilirinirq (Environmental) Coordinator coordinates both committees. The primary purpose of the Environmental Assessment Review Team is to ensure all resource development projects reflect the priorities of the GN.

Dendritic drainage patterns in a sandstone escarpment, between Kugaaruk and Repulse Bay – *Courtesy of AANDC*

As Chair of the Socio-Economic Assessment Committee, EDT is responsible for coordinating the participation of GN departments and other agencies with a mandate directly linked to the social, economic, and cultural well-being of Nunavummiut. By establishing a well-defined set of expectations and reviewing environmental impact statements according to those expectations, the Assessment Committee and its members strive to ensure any resource development in Nunavut represents a net benefit to all Nunavummiut.

The Avatiliriniq Coordinator, in collaboration with the chairs of the Socio-Economic Assessment Committee and the Environmental and Human Health Assessment Committee, is responsible for leading the GN's internal review of all development projects in the environmental assessment process, and for ensuring consistency in the GN's participation and messaging. The Avatiliriniq Coordinator is also responsible for formal communication with the Nunavut Impact Review Board, other regulatory agencies, and stakeholders, and with proponents on their environmental impact statements.

The Department of Economic Development and Transportation is also the GN's lead on the three Regional Socio-Economic Monitoring Committees, one in each region of Nunavut. These committees address project certificate requirements for resource development projects, by implementing regional project-specific monitoring programs. Additionally, the committees ensure consistency across the territory, and provide a venue for stakeholders to take part in monitoring efforts. The Regional Coordinator, located in Iqaluit, ensures that all efforts are consistent, traceable, and comparable, and that the efforts of and data collected by each regional committee are provided to the other regional committees and to external programs, such as the federal government's Nunavut General Monitoring Plan.

### Petroleum Resources

Petroleum exploration in Nunavut began in 1962 and occurred throughout the territory until 1986. Nunavut, approximately 20 per cent of Canada's area, is estimated to have approximately a third of Canada's total petroleum resource endowment. Nunavut has discovered resources in 20 licensed fields, mostly in the Sverdrup Basin in the High Arctic, and total

nearly two billion barrels of crude oil and 27 trillion cubic feet of natural gas. Undiscovered resources (estimated by Geological Survey of Canada) are believed to be many times higher than currently known. In preparation for possible petroleum licensing, Aboriginal Affairs and Northern Development Canada is beginning the environmental and consultation work for a Strategic Environmental Assessment of Baffin Bay and Davis Strait. The GN supports investment in Nunavut's petroleum resources and is committed to responsible economic development.

### Prospector Development

Every year in communities throughout the territory, EDT geologists present an Introduction to Prospecting Course to interested residents. Since 2000, each community in Nunavut has received the course every three to four years and to date over 900 Nunavummiut have successfully completed it. Many graduates have subsequently applied to the Nunavut Prospectors Program for funding to start their own projects. In 2013, courses were held in Arviat, Taloyoak, Kimmirut, Iqaluit, Pond Inlet, Clyde River, and Igloolik.

Through the Nunavut Prospectors Program, EDT provides technical and financial assistance to Nunavummiut with demonstrated prospecting skills who want to carry out their own work. This program, introduced in 1999, provides up to $8,000 in annual financial assistance for each qualified prospector. There are typically 15 to 20 individual prospector's projects funded annually through this program operating throughout Nunavut.

### Minerals Education and Training

EDT works with other stakeholders, including the GN Department of Education, the Government of Canada, and the mining and exploration industry, on a number of programs designed to inform Nunavummiut of the opportunities in mineral resources. Initiatives include:

- **Nunavut Mine Training Roundtable** – EDT contributes $200,000 a year for multi-party mine training programs. 2013-14 funds were allocated for training potential workers in the Qikiqtani and Kivalliq regions.
  - Baffinland Iron Mines Corporation and Ilisaqsivik – Cultural Awareness in an Industrial Setting ($100,000);
  - Hamlet of Arviat – Diamond Driller's Helper Training Program, and Work Readiness Program ($66,600); and
  - Nunami Stantec Limited – Environmental Monitor Training ($33,400).
- **Territory-wide Mine Training Organization** – Recognizing this as the most efficient means of serving the needs of an expanding workforce and industry, and the best means of securing consistent federal funding, the GN remains committed to establishing this training organization.
- **Northern Minerals Workforce Development Strategy** – In cooperation, the three territorial governments continue to advance mine training in the North, in the anticipation of dedicated federal funding.
- **Nunavut Labour Force Study** – Following a similar study conducted by the Mining Industry Human Resources Council for Yukon, EDT is working with the council and the NWT Mine Training Society to conduct a study in the mining industry for NWT and Nunavut, and to produce a Pan-Territorial Mining Labour Market Forecast and Report. Completion of this report is expected in September 2014.

EDT programs and initiatives include:

- Nunavut High School Math and Science Awards Program
- Independent Science Program for Youth (I-SPY) to support science-education camps and activities throughout Nunavut
- Mineral Exploration Field Assistant's Course offered by Nunavut Arctic College,
- Curriculum development for Nunavut schools, and
- Careers in Mining school and community presentations.

### Development Partnership Agreement Management

The Government of Nunavut introduced the Development Partnership Agreement Policy in 2006 as a means of collaborating with industry to identify and improve long-term social and economic benefits to Nunavummiut. Revised and improved in 2012, the policy encourages mining companies to: (1) work with the GN and impacted communities to determine what opportunities exist to mitigate any development impacts, and (2) ensure continued benefits for future generations. Some of these opportunities include infrastructure development, education, and training. As an incentive to proponents to consider this voluntary agreement, the GN extends its fuel tax rebate program to mining companies who enter into one of these agreements.

The GN currently has one Development Partnership Agreement in place with Agnico-Eagle Mines Ltd., owner and operator of the Meadowbank gold mine near Baker Lake. As part of the agreement, Agnico-Eagle has assisted the

Hamlet of Baker Lake with construction of a new baseball diamond, with removal of toxic waste from its landfill, and with a variety of training initiatives for residents seeking employment at the mine.

### ENERGY SECRETARIAT

The Energy Secretariat of EDT is responsible for the development, coordination, and delivery of Nunavut's energy strategy, which seeks to address Nunavut's dependence on imported fossil fuels. In this respect, the secretariat develops and delivers alternative energy, energy efficiency, and energy awareness programs and policies. The Energy Secretariat is also the intergovernmental lead on federal-territorial-provincial energy policy discussions as well as being responsible for climate change mitigation.

Participants in the 2013 Introduction to Prospecting course, Clyde River – *Courtesy of GN*

## MINERALS & PETROLEUM RESOURCES DIVISION

HEADQUARTERS (IQALUIT)
Linda Ham, Acting Director
t: 867 975 7892 • e: lham@gov.nu.ca

Dianne Lapierre, Manager,
Environmental Assessment & Regulations
t: 867 975 7803 • e: dlapierre1@gov.nu.ca

Lou Kamermans, Environmental Assessment Coordinator
t: 867 975 7806 • e: lkamermans@gov.nu.ca

Agnes Simonfalvy, Avatiiliriniq (Environmental) Coordinator
t: 867 975 7830 • e: asimonfalvy@gov.nu.ca

Peter Frampton, Senior Petroleum Advisor
t: 867 975 7842 • e: pframpton@gov.nu.ca

ARVIAT OFFICE
e: arviatresidentgeologist@gov.nu.ca

Mike Beauregard, Resident Geologist
t: 867 857 3165 • e: mbeauregard@gov.nu.ca

Hugh Nateela, Community Mining Advisor
t: 867 857 3164 • e: hnateela@gov.nu.ca

Ronald Suluk, Manager, Community Mining Engagement
t: 867 857 3166 • e: rsuluk@gov.nu.ca

CAMBRIDGE BAY OFFICE
e: cambayresidentgeologist@gov.nu.ca

Hugh MacIsaac, Resident Geologist
t: 867 983 4224 • e: hmacisaac@gov.nu.ca

Harry Maksagak, Community Mining Advisor
t: 867 983 4160 • e: hmaksagak@gov.nu.ca

## ENERGY SECRETARIAT (IQALUIT)

Chris Down, Senior Advisor, Energy Policy
t: 867 975 7803 • e: cdown@gov.nu.ca

Andrew Pye, Energy Resource Analyst
t: 867 975 7809 • e: apye@gov.nu.ca

**www.edt.gov.nu.ca**

Nunavut Tunngavik Incorporated (NTI) is the Inuit corporation responsible for overseeing implementation of the Nunavut Land Claims Agreement. NTI's mandate includes safeguarding, administering, and advancing the rights and benefits of the Inuit of Nunavut to promote their economic, social, and cultural well-being through succeeding generations. The Lands and Resources Department of NTI, in cooperation with the three Regional Inuit Associations (RIAs) who are the surface owners of the Inuit Owned Lands (IOL) parcels, is responsible for the implementation of Inuit responsibilities related to the management of IOL, minerals, oil and gas, and marine areas.

NTI is the manager of the minerals for which the Inuit are the fee simple title owners. For these minerals, NTI issues mineral rights through a negotiated Exploration Agreement (EA) that provides a holder the right, if it meets the terms of the EA, to receive a Mineral Production Lease that allows for mining a discovered resource.

NTI uses a map selection system for the acquisition of mineral rights. Interested parties submit to NTI an Expression of Interest that includes a map of the proposed exploration area. Expressions of Interest and subsequent correspondence and negotiation are kept confidential with NTI and the applicable RIA until required to be made public, typically upon signing of a Memorandum of Understanding between NTI and the applicant outlining the agreed terms upon which the EA will be developed.

Although the process described normally applies, NTI, as a private organization, has complete discretion as to whether it will issue an EA (or other agreement), what the process will be for obtaining an agreement, and what the terms of the agreement will be. The terms may include, for example, NTI holding a direct interest in a project or seeking additional benefits such as shares or milestone payments.

Under the standard terms, successful applicants, upon executing the new EA and submitting the first year's annual fees, will be granted the exclusive right to explore for minerals on the Exploration Area. In order to gain access to the land, however, the applicant must obtain a surface right issued by the RIA.

Holders of Exploration Agreements are required to submit annual exploration work reports to NTI that remain confidential for a period of up to three years.

Arctic cotton, near Diane River – *Courtesy of AANDC*

### NTI Uranium, Mining and Reclamation Policies

NTI has developed a series of policies applicable to exploration and mining, specifically a general Mining Policy, a Uranium Policy, and a Reclamation Policy. The policies provide that NTI will support exploration and mining provided there are minimal negative environmental and socioeconomic impacts; that Inuit cultural and social needs are respected; that investment in Nunavut is encouraged; that land-use conflicts are resolved equitably; and that Inuit economic opportunities are maximized. The texts of all the policies are available from NTI.

### Projects on Inuit Owned Lands

Many of the advanced exploration projects in Nunavut fall on IOL parcels for which NTI is the mineral title owner. The adjacent table summarizes some of the current active Exploration Agreements and their locations.

| PROJECT/DEPOSIT | HOLDER(S) |
|---|---|
| **Kitikmeot Region** | |
| High Lake[1] | MMG Resources Inc. |
| Hope Bay[2] | TMAC Resources Inc. |
| **Kivalliq Region** | |
| Angilak/Lac Cinquante | Kivalliq Energy Corporation |
| IVR (Pipedream) | Agnico-Eagle Mines Ltd. |
| Meadowbank | Agnico-Eagle Mines Ltd. |
| Meliadine[3] | Agnico-Eagle Mines Ltd. |
| North Thelon/Ukalik | Forum Uranium Corp. |
| **Qikiqtani Region** | |
| Baffin Island Gold[4] | Commander Resources Ltd. |
| Haig Inlet and SQ-05 | Canadian Orebodies Ltd. |
| HB-09 (West Melville) | Vale Exploration Canada Inc. |
| Mary River/Eqe Bay[5] | Baffinland Iron Mines Corporation |

*Note: All projects referenced above are discussed in this report.*

1. The project involves Crown land and land held under NTI Exploration Agreements and grandfathered leases.
2. The Boston deposit is located on surface IOL, while the Doris, Madrid, South Patch, Naartok, and Suluk are on subsurface IOL, distributed among grandfathered leases, and NTI Exploration Agreements. Potential extension of the Boston deposit down-dip or along strike to the north will also be on subsurface IOL.
3. The project involves land held under NTI Exploration Agreements and grandfathered leases.
4. The project involves land held under NTI Exploration Agreements as well as grandfathered claims and leases.
5. The overall project involves Crown land and subsurface IOL.
6. The planned Mary River Mine is located on a grandfathered lease. Additional showings and deposits in the area are located on a mixture of subsurface IOL and Crown land. In October 2012, NTI added the Eqe Bay iron showings to the Baffinland agreement.

### NTI LANDS, MINERALS, OIL AND GAS

PO Box 1269
Cambridge Bay, NU X0B 0C0
t: 867 983 5600
f: 867 983 5624

Carson Gillis, Director of Lands and Resources
e: cgillis@ntilands.com

Keith Morrison, Senior Advisor,
Minerals, Oil and Gas
e: kmorrison@ntilands.com

Jorgan Aitaok, Manager,
Mineral Agreements and Promotion
e: jaitaok@ntilands.com

**www.ntilands.tunngavik.com**

Haul truck moving ore, Meadowbank Mine – *Courtesy of AANDC*

## Canada–Nunavut Geoscience Office

The Canada-Nunavut Geoscience Office (CNGO) was established in 1999 to help foster the development of Nunavut's mineral and energy resources and infrastructure. It is a partnership between the Government of Nunavut (GN), Natural Resources Canada, and Aboriginal Affairs, and Northern Development Canada (AANDC). Nunavut Tunngavik Incorporated (NTI) is an ex-officio member of the office. The office consists of six employees with expertise in Precambrian, Paleozoic and Quaternary geology; GIS; and online data dissemination. In February 2013, the CNGO office moved into the new Inuksugait Phase IV building in Iqaluit.

The mandate of the CNGO is to provide accessible geoscience information and expertise in Nunavut that supports:

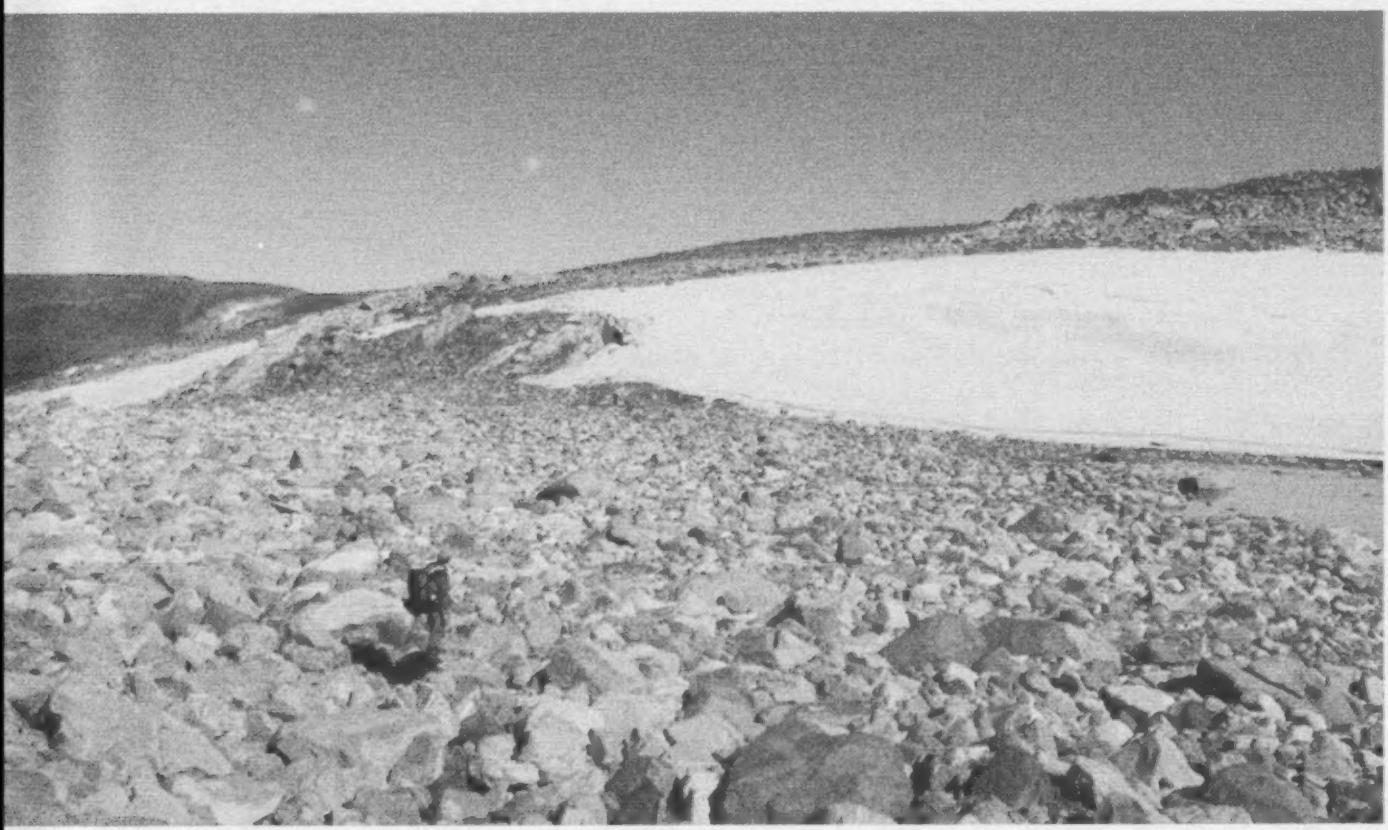
- responsible resource exploration and development,
- responsible infrastructure development,
- geoscience capacity building,
- education and training, and
- geoscience awareness and outreach.

The CNGO geoscience program concentrates on new geological mapping and research, supporting geoscience-capacity building, disseminating geoscience information and developing collaborative partnerships of strategic importance to Nunavut.

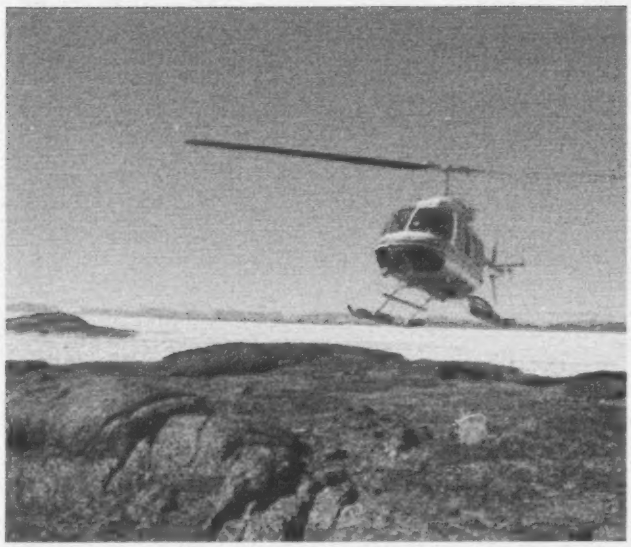
Geoscience projects conducted by the CNGO in 2013 focused on six major topics. They include: mineral deposit studies; regional geoscience; geoscience for infrastructure; carving stone; aggregate and industrial minerals; and outreach and education. Summaries of the highlights from each of the projects are provided below; more detailed papers with preliminary observations and interpretations will be published in the CNGO 2013 *Summary of Activities* volume that will be available for download at **www.cngo.ca** in early 2014.

### Mineral Deposit Studies

The objective of mineral deposit studies is to increase the interest in prospecting in Nunavut and the understanding of mineral deposits and districts across the territory. In 2013, the CNGO continued a multi-year endeavor in the Borden Basin on northern Baffin Island investigating



Geologist on Hall Peninsula, Baffin Island – *Courtesy of CNGO*



Helicopter approach, Hall Peninsula – *Courtesy of CNGO*

the geological evolution and economic potential of Mesoproterozoic basins in Nunavut. Laurentian University is leading the project with logistical support provided by the Polar Continental Shelf Project. This year, the work focussed on explaining the formation of the Ikpiarjuk Formation mounds and determining the composition of the vent fluid that formed them. These findings will evaluate the potential for sedimentary exhalative deposits with the potential for massive sulphides in the area.

Continuing effort is also being applied to evaluate the natural resource potential on Hall Peninsula through mapping to determine the economic significance of numerous ultramafic rocks occurring in the region. The discovery of new layered mafic-ultramafic intrusions could show potential for Ni–Cu–platinum group element (PGE) mineralization and the potential for carving stone in hydrated ultramafic rocks. Studies are continuing to characterize the mantle sources of diamonds beneath the cratonic root and to gain insight into their formation and preservation beneath the Hall Peninsula.

### Regional Geoscience

The aim of regional geoscience research is to raise the level of publicly available data about the bedrock and surficial geology and its resources in Nunavut. This information supports decision-making for land-use planning and exploration. The focus for geological field mapping in 2013 was on the Hall Peninsula, southern Baffin Island. The multi-year Hall Peninsula Integrated Geoscience Program is being led by the CNGO in collaboration with Dalhousie University, University of Alberta, Université Laval, University of Manitoba, University of Ottawa, University of Saskatchewan, Nunavut Arctic College, and the Geological Survey of Canada. A twenty-five person camp was located in the northern part of the peninsula between July 10 and August 10, 2013. Mapping work was also conducted out of Iqaluit from June 30 to July 9. The study area comprises all or parts of three NTS map sheets (26A, 26B and 26O).

The focus for the 2013 Hall Peninsula Integrated Geoscience Program was on bedrock (1:250,000 scale) and surficial (1:100,000 scale) mapping, and a range of thematic studies.

Research included:

- metamorphic and tectonic studies,
- regional geochronology on major bedrock map units,
- thermochronology to study landscape evolution and uplift,
- studying conodont fossils from carbonate xenoliths in kimberlite pipes to estimate the total thickness of Lower Paleozoic sedimentary cover and the degree to which the xenoliths were heated by the kimberlites,
- detailed mapping projects to solve specific structural problems and better assess resource potential in prospective areas, and
- surficial studies focused on till geochemistry, ice flow, glacial erosion, and permafrost.

Highlights of work in 2013 included:

- identifying new carving stone occurrences,
- identifying a new kimberlite dike, and
- mapping previously undocumented layered-mafic igneous intrusions.

### Geoscience for Infrastructure

The Earth Sciences Sector of Natural Resources Canada and Canadian universities, with the support of the CNGO, have been collaborating to apply geoscience knowledge and expertise to help government, community, and industry stakeholders improve their understanding of landscape constraints on new infrastructure development. In 2013, applied research focused on permafrost, terrain hazard mapping, coastal erosion and sea-level rise, geohazards in communities and regions at risk across the territory. New geohazards research led by the Earth Sciences Sector Public Safety Geoscience Program in Baffin Bay is assessing seafloor stability, sediment transport, earthquake history, seabed mass movements, and natural hydrocarbon seeps. The Earth Sciences Sector Climate Change Geoscience Program is also conducting permafrost research at the Iqaluit International Airport, as well as coastal climate-change work.

Haul trucks moving waste rock at Meadowbank Mine – *Courtesy of AANDC*

The runway, taxiways, and apron at the Iqaluit Airport experience instability and subsidence that are likely related to permafrost degradation and drainage conditions. New geophysical data are being collected to better characterize permafrost conditions and processes at this site. An update of coastal climate-change issues across Nunavut is also being undertaken, with an emphasis on coastal mapping work in southern Coronation Gulf and sea-level change in Hudson Bay.

### Carving Stone

Through its *Ukkusiksaqtarvik: The Place Where We Find Stone, Carving Stone Supply Action Plan*, the GN has prioritized the need to evaluate the supply of raw carving stone on behalf of Inuit artisans. To support this plan, the CNGO is collaborating with the GN to verify the quality and size of hand-mined carving stone deposits and identify new deposits throughout the territory. Emphasis in 2013 was on studying the geology and evaluating the remaining resource potential at the Kangiqsukutaaq quarry (Korok Inlet, near Cape Dorset). This quarry has been producing high-quality carving stone for Inuit carvers in south Baffin and across Nunavut for more than 50 years. The collaboration between the CNGO, Qikiqtani Inuit Association, the GN, and DeBeers Canada aims to identify the extent of remaining at-surface or surface-accessible resources at the quarry, and to complete a site management plan. Graduate research by the University of Manitoba is identifying the typical characteristics of high-quality deposits. This work will provide indicators to identify favourable tectonic settings for the discovery of new high-quality deposits. The Baffin Island sites of Korok Inlet, Aberdeen Bay, and Opingivik are being examined in this study.

### Aggregate and Industrial Minerals

New fieldwork completed in 2013 focused on the industrial limestone resource potential of the Lower Silurian Ekwan River and Attawapiskat formations on western Southampton Island. Three major areas were explored. Forty-nine samples, each weighing more than 3 kg, were collected for whole-rock, major- and minor-element analysis in order to quantitatively grade the resource potential. All samples were analyzed by X-ray fluorescence and preliminary data suggest that high-calcium limestone occurs in the Ekwan River Formation on western Southampton Island. This new discovery could stimulate the development of Nunavut's first industrial limestone quarry.

## Education and Outreach

In 2013, the CNGO and Dalhousie University piloted a collaborative geoscience training program for Nunavut students. The main objective is to engage Nunavut students by providing intensive hands-on training in geoscience that could lead to a rewarding career in a geology-related field. This year, the program consisted of: introductory geoscience lessons delivered by the CNGO, participation in Dalhousie University's Advanced Field School in California, work as a summer field assistant with the CNGO mapping project on Baffin Island, and assisting with report writing and map-making for the CNGO. Two candidates from the Nunavut Arctic College's Environmental Technology Program successfully participated in this program.

American harebell – *Courtesy of AANDC*

## Contacts

Canada–Nunavut Geoscience Office
Inuksugait Plaza, Phase 4
PO Box 2319
Iqaluit, NU X0A 0H0

David Mate, Chief Geologist
t: 867 975 4412
e: david.mate@nrcan-rncan.gc.ca

Serge Basso, Geotechnology Analyst
t: 867 975 4529
e: serge.basso@nrcan-rncan.gc.ca

Celine Gilbert, GIS Specialist
t: 867 975 4414
e: celine.gilbert@nrcan-rncan.gc.ca

Holly Steenkamp, Bedrock Geology
t: 867 975 4533
e: holly.steenkamp@nrcan-rncan.gc.ca

Tommy Tremblay, Surficial Geology
t: 867 975 4505
e: tommy.tremblay@nrcan-rncan.gc.ca

Dr. Shunxin Zhang, Paleozoic Geology
t: 867 975 4579
e: shunxin.zhang@nrcan-rncan.gc.ca

www.cngo.ca

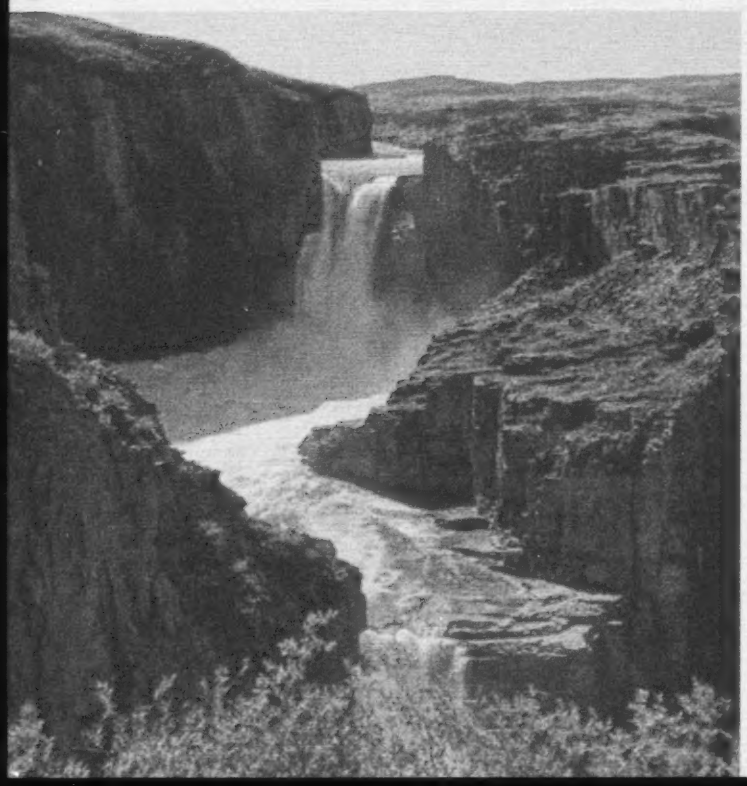
Nunavut Geoscience Data
www.nunavutgeoscience.ca

## Kitikmeot Region

The Kitikmeot region occupies an area of 446,728 square kilometres, and is the second largest administrative district in Nunavut. It includes the western and northern portions of the Nunavut mainland as well as King William Island, Stefansson Island, and parts of Victoria Island and Prince of Wales Island. The largest communities in the region, Cambridge Bay and Kugluktuk, both provide logistical support, supplies, and services for exploration projects. In the Northwest Territories, Yellowknife is an important logistical and supply centre for projects operating in the Kitikmeot. The region's other communities, Gjoa Haven, Taloyoak, and Kugaaruk, are all located in the eastern Kitikmeot.

The Kitikmeot region is underlain by Archean and Proterozoic-age rocks of several geological provinces, including the Bear, Churchill and Slave, within the Canadian Shield. The Paleozoic strata of the Arctic Platform underlie the northern part of the region. The main commodities of interest include gold, zinc, and copper, but the region is also known to host diamonds, platinum group elements, and uranium. Past-producing mines in the Kitikmeot include the Roberts Bay and Ida Bay silver mines, located southwest of Cambridge Bay near the Hope Bay gold project, as well as the Lupin gold mine and Jericho diamond mine southeast of Kugluktuk and north of the NWT-Nunavut border.

All exploration in the Kitikmeot region in 2013 was carried out in search of gold and base metals. Most of that work was done by mid-tier and major companies, as many junior exploration companies nation-wide were hampered by difficult market conditions. Mineral exploration and deposit appraisal expenditures are estimated to total $121 million in the region in 2013.



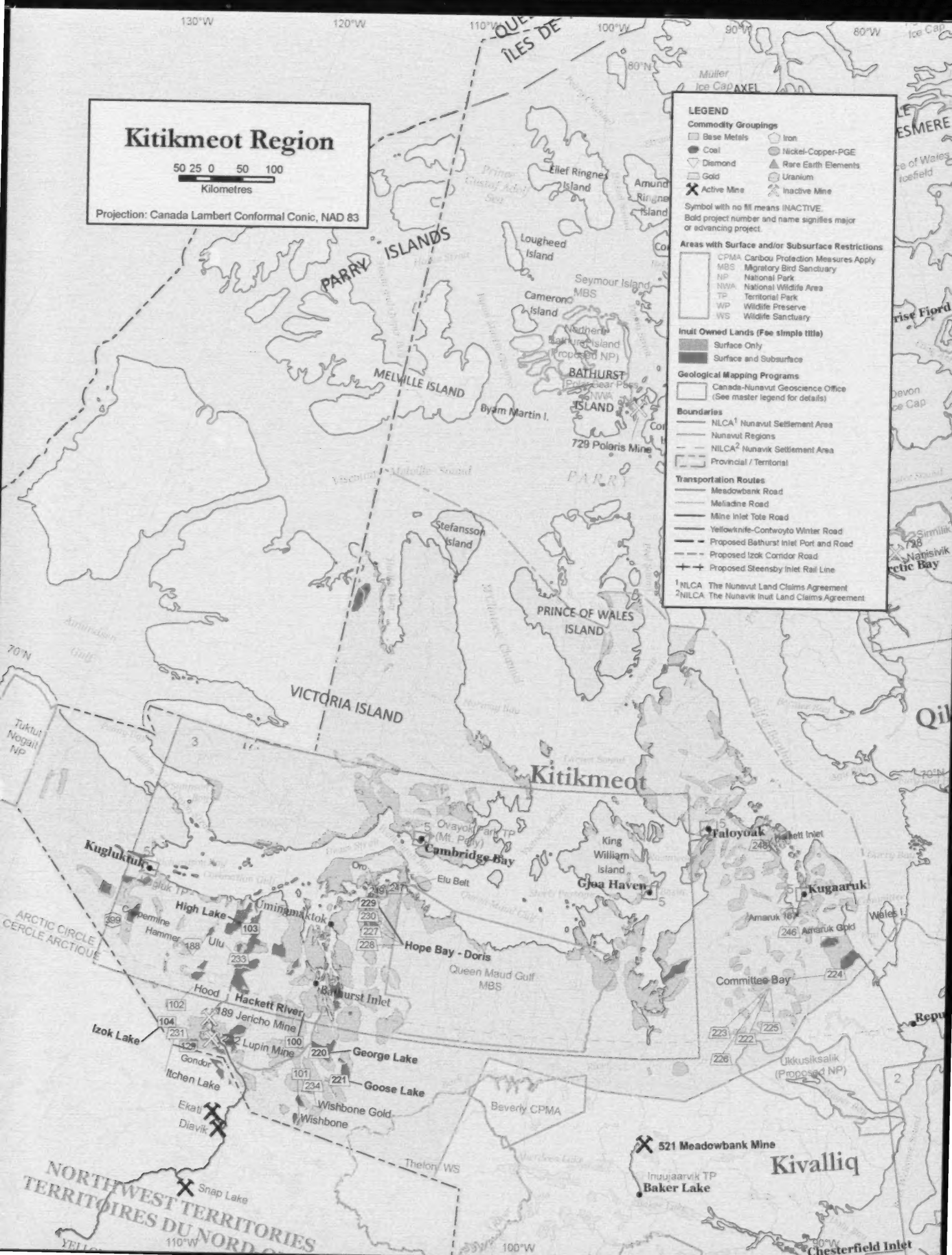
Wilburforce Falls on the Hood River – *Courtesy of AANDC*

MMG Resources Inc. continued work at its Izok Corridor and Hood zinc-copper projects. Exploration on the Izok Corridor primarily focused on regional target identification. MMG submitted a project description in 2012 to the Nunavut Impact Review Board (NIRB) to initiate the environmental review and permitting process for the project. The proposed plan includes a mine and mill at Izok Lake, a mine at High Lake, and a port at Grays Bay, all connected by a 325 km all-weather road. Following the submission, MMG requested a halt to the review process for the Izok Corridor project to examine options to improve the project's economic viability. The company originally planned to submit a revised project description to the NIRB in late 2013, but has since indicated this submission will take place in late 2014 at the earliest.

The Hackett River silver-zinc project is owned by Glencore Xstrata plc, a company formed in May 2013 from a merger of Glencore International plc and Xstrata plc. In 2013, the company completed more than 38,000 m of diamond drilling focused on identifying extensions of known deposits and testing geophysical and geochemical targets for new discoveries. Glencore has also partnered with Sabina Gold & Silver Corp., owner of the neighbouring Back River gold project, to advance the Bathurst Inlet Port and Road, which proposes to construct a road to connect the two projects and a port at Bathurst Inlet. Sabina continued aggressively advancing its Back River project in 2013. An updated resource estimate was published in February 2013, a substantial drilling program was carried out, and a preliminary feasibility study (PFS) was completed for Back River in October. The company has initiated a feasibility study, and is expected to submit a Draft Environmental Impact Statement (DEIS) to NIRB in early 2014.

TMAC Resources Inc. acquired the Hope Bay gold project in early 2013 from Newmont Mining Corporation, which had put the project into care and maintenance status just a year earlier. TMAC re-opened the Doris camp, initiated a drill program, and also negotiated a renewal of the commercial lease for the site from the Kitikmeot Inuit Association, as well as a renewal of the Type A water license from the Nunavut Water Board.

Several other projects active in past years were put into care and maintenance status in 2013, notably Elgin Mining Inc.'s past-producing Lupin gold mine and Ulu gold project.


Kitikmeot Region
50 25 0 50 100
Kilometres
Projection: Canada Lambert Conformal Conic, NAD 83
LEGEND
Commodity Groupings
Base Metals
Coal
Diamond
Gold
Active Mine
Iron
Nickel-Copper-PGE
Rare Earth Elements
Uranium
Inactive Mine
Symbol with no M means INACTIVE.
Bold project number and name signifies major or advancing project.
Areas with Surface and/or Subsurface Restrictions
CPMA Caribou Protection Measures Apply
MBS Migratory Bird Sanctuary
NP National Park
NWA National Wildlife Area
TP Territorial Park
WP Wildlife Preserve
WS Wildlife Sanctuary
Inuit Owned Lands (Fee simple title)
Surface Only
Surface and Subsurface
Geological Mapping Programs
Canada-Nunavut Geoscience Office (See master legend for details)
Boundaries
NLCA1 Nunavut Settlement Area
Nunavut Regions
NILCA2 Nunavik Settlement Area
Provincial / Territorial
Transportation Routes
Meadowbank Road
Meliadine Road
Mine Inlet Tote Road
Yellowknife-Contwoyto Winter Road
Proposed Bathurst Inlet Port and Road
Proposed Izok Corridor Road
Proposed Steensby Inlet Rail Line
1NLCA The Nunavut Land Claims Agreement
2NILCA The Nunavik Inuit Land Claims Agreement
PARRY ISLANDS
MELVILLE ISLAND
BATHURST ISLAND
PRINCE OF WALES ISLAND
VICTORIA ISLAND
Kitikmeot
Kivalliq
Cambridge Bay
Gjoa Haven
Taloyoak
Kugaaruk
Committee Bay
Baker Lake
Chesterfield Inlet
Kugluktuk
High Lake
Umingmaktok
Hope Bay - Doris
Hackett River
Izok Lake
George Lake
Goose Lake
Wishbone Gold
Wishbone
Lupin Mine
Jericho Mine
Snap Lake
521 Meadowbank Mine
Beverly CPMA
Thelon WS
Ukkusiksalik (Proposed NP)
Tuktut Nogait NP
Ovayok Park TP (Mt. Pelly)
Inuujaarvik TP
Ice Cap
Lougheed Island
Seymour Island MBS
Cameron Island
Byam Martin I.
729 Poloris Mine
Stefansson Island
King William Island
Queen Maud Gulf MBS
Bathurst Inlet
Elu Belt
Oro
Ulu
Hood
Gondor
Itchen Lake
Ekati
Diavik
Amaruk
Amaruk Gold
Committee Bay
Repulse Bay
Arctic Bay
Qikiqtarjuaq
Pond Inlet
Wales I.
Devon Ice Cap
Rise Fiord
Eclipse Sound
Prince Regent Inlet
Lancaster Sound
Barrow Strait
Peel Sound
Franklin Strait
Victoria Strait
Simpson Strait
Dease Strait
Coronation Gulf
Amundsen Gulf
Dolphin and Union Strait
Cape Bathurst
Darnley Bay
Minto Inlet
Melville Sound
Prince of Wales Strait
Parry Channel
Ellef Ringnes Island
Amund Ringnes Island
Meighen Island
Axel Heiberg Island
Müller Ice Cap
Ice Cap
Ice Cap
Wollaston Peninsula
Victoria Island
Banks Island
Nunavut
Northwest Territories
Territoires du Nord-Ouest
Yukon
130°W
120°W
110°W
100°W
90°W
80°W
80°N
70°N

## BASE METALS

| 100 [1] 101 [2] | HACKETT RIVER[1], WISHBONE[2] |
|---|---|
| Operator/Owner | Glencore Xstrata plc |
| Commodities | Silver, Zinc, Gold, Copper, Lead |
| NTS | 76F/15, 76F/16[1]; 76F/01, 76F/08 – 76F/10, 76G/03 – 76G/06, 76J/04, 76K/01, 76K/02[2] |
| Land Tenure | Crown, Subsurface IOL, Surface IOL[1]; Crown, Surface IOL[2] |
| Location | 355 km southeast of Kugluktuk[1]; 395 km southeast of Kugluktuk[2] |

The silver-zinc volcanogenic massive sulphide (VMS) Hackett River project is located within the Hackett River greenstone belt in the Slave Structural Province. Both Hackett River and the adjacent Wishbone project were acquired from Sabina Gold & Silver Corp. in 2011.

The Hackett River project includes three main silver-rich zinc deposits: Main Zone, Boot, and East Cleaver, as well as the Jo Zone satellite deposit. All of these deposits are located within a 2 km by 5 km area, and occur as tabular semi-massive to massive lenses of sulphide mineralization at or near the contact between underlying felsic volcanics and overlying pelitic sediments. Stringer sulphide mineralization is locally developed beneath the massive sulphide lenses, and stratiform disseminated sulphides surround the massive sulphide and stringer zones.

Hackett River is considered one of the largest undeveloped VMS deposits in Canada, and possibly the world. An updated National Instrument (NI) 43-101 resource estimate was released in May 2013 that includes 25 million tonnes of indicated resources at average grades of 4.2% Zn, 0.6% Pb, 0.5% Cu, 130 grams per tonne (g/t) Ag and 0.3 g/t Au, and 57 million tonnes of inferred resources grading 3.0% Zn, 0.5% Pb, 0.4% Cu, 100 g/t Ag and 0.2 g/t Au. Compared to the previous resource estimate released December 2011, this represents a 34 per cent increase. A PFS on the project is underway. The company has also indicated that submission of the DEIS to NIRB, previously planned for 2013, will be deferred until the PFS is completed.

Approximately $33 million was spent exploring Hackett River and Wishbone in 2013. The diamond drill program included 114 drill holes totalling 38,536 m. Most holes were targeted at extending known deposits, and testing geochemical and geophysical targets for new discoveries. A geotechnical drilling program was also completed at the known deposits in support of the PFS.

Glencore has been working with Sabina Gold & Silver Corp. to acquire permits for the Bathurst Inlet Port and Road project, which would support shipping infrastructure for both the Hackett River and Back River projects. Plans to submit a DEIS for the project to NIRB in 2013 were announced previously, but the results of a geotechnical drilling program at the proposed port site suggest that the foundation material at that site is not adequate. As such, the DEIS will be deferred until further geotechnical drilling has been completed to assess the foundation material at an alternate port site.

The Wishbone property spans the 115 km length of the Hackett River greenstone belt, alternatively referred to as the Wishbone greenstone belt, and is comprised of 238 mineral claims with a combined area of almost 200,000 hectares (ha).

Aerial view of Hackett River camp – *Courtesy of AANDC*

The property also encloses the Musk VMS deposit, discovered by Noranda Mining and Exploration Inc. in 1979, and owned by Glencore. Exploration on Wishbone in 2013 was limited to electromagnetic (EM) and gravity airborne geophysical surveys to expand the geophysical coverage of the property and to generate targets to follow-up in future programs.

| 102 | HOOD |
|---|---|
| Operator/Owner | MMG Resources Inc. |
| Commodities | Copper, Zinc |
| NTS | 86I/02 |
| Land Tenure | Subsurface IOL |
| Location | 215 km south of Kugluktuk |

The Hood project is located within the Hood River supracrustal belt northeast of Izok Lake. The property has been explored intermittently by a number of different operators since the first discovery of copper and zinc VMS mineralization in 1972 by TexasGulf Inc. Three copper-zinc deposits, Hood 10, Hood 41, and Hood 41A, have been identified on the property along with multiple showings. Historic, non-NI 43-101 compliant resources have been published for each of the deposits. Mineralization in the Hood deposits takes the form of massive to stringer sulphides within gossanous zones that occur at the contact between andesites and meta-rhyolites.

Since acquiring the property in 2009, MMG has conducted rock and soil sampling, ground geophysical surveys, and re-logging of historic drill core. In 2012, 6,155 m of diamond drilling was carried out, along with downhole geophysical EM surveys. A drill program planned to test the Renegade horizon at Hood in 2013 was not carried out.

| 103 104 | IZOK CORRIDOR (HIGH LAKE[1], IZOK LAKE[2]) |
|---|---|
| Operator/Owner | MMG Resources Inc. |
| Commodities | Zinc, Copper, Lead, Silver, Gold[1]; Zinc, Copper, Lead, Silver[2] |
| NTS | 76M/07, 76M/10[1]; 86H/10, 86H/11, 86H/14[2] |
| Land Tenure | Crown, Subsurface IOL[1]; Crown, Surface IOL[2] |
| Location | 185 km southeast of Kugluktuk[1], 250 km south of Kugluktuk[2] |

Geologists boarding a helicopter at Hackett River
*– Courtesy of AANDC*

The Izok Corridor project includes the High Lake and Izok Lake VMS deposits. The project description submitted to NIRB in 2012 details other proposed components, including a 325 km road that would connect the deposits to a port at Grays Bay on the Coronation Gulf, from which mineral concentrates would be shipped seasonally. The Minister of Aboriginal Affairs and Northern Development approved a Part 5 Review of the project under Article 12 of the Nunavut Land Claims Agreement in April 2013. Subsequently, MMG requested that NIRB not proceed with the public scoping and Environmental Impact Statement guideline development phase of the permitting process, until a revised project description with design alternatives that improve the economic viability of the project is submitted. These design options could include the addition of the Hood deposits to the project's NI 43-101-compliant resources. MMG had planned to submit the revised project description to NIRB by December 2013, but has now indicated that a status update will be provided in Q4 of 2014. This revised project description will include consideration of alternative engineering options and will be provided after the completion of the 2014 exploration program which is intended to identify more mineral resources within the Izok Corridor.

The High Lake deposits are located within the High Lake greenstone belt in the northern part of the Slave Province. These deposits have been extensively worked by a number of different operators since the initial discovery of mineralization on the property in 1955. Three main mineralized zones, AB, D, and West, have been identified on the property from which an indicated mineral resource of 17.2 million tonnes grading 3.35% Zn, 2.25% Cu, 0.31% Pb, 70 g/t Ag, and

0.95 g/t Au is estimated. Both open pit and underground mines are contemplated on the High Lake property, with an estimated mine life (as per the project description submitted to NIRB in 2012) of 12 years.

Five deposits – the Central, North, Northwest, Inukshuk, and South – are known on the Izok Lake property. Considerable exploration has taken place on the property since 1975. Mineralization is associated with felsic volcanic rocks, primarily rhyolite, overlain by carbonate-bearing sediments of the Contwoyto Formation. A significant discovery was made in 2012 concerning the host rocks for mineralization – of the seven distinct types of rhyolite on the Izok Lake property, it was determined that only one type hosts massive sulphide mineralization. This information will be an important tool for targeting future exploration on the property.

The last published resource for the Izok deposits estimates indicated resources of 14.4 million tonnes grading 12.9% Zn, 2.5% Cu, 1.3% Pb and 70.5 g/t Ag and inferred resources of 369,000 tonnes grading 6.4% Zn, 3.8% Cu, 0.3% Pb, and 39 g/t Ag. The 2012 project description suggested a mine life of 11 years for the deposits, but one of the design alternatives being considered would shorten that to 5 to 7 years.

Much of the work completed on the Izok Corridor project in 2013 was focused on engineering studies to assess design alternatives. The exploration program concentrated on regional target identification along the proposed road route. Work completed included geological mapping, prospecting, and ground and airborne geophysical surveys. No results from this program have been released.

Winter drilling at George Lake – *Courtesy of AANDC*

## GOLD

| 220 221 | BACK RIVER (GEORGE LAKE[1], GOOSE LAKE[2]) |
|---|---|
| Operator/Owner | Sabina Gold & Silver Corp. |
| Commodity | Gold |
| NTS | 76G/13, 76G/14, 76J/03, 76J/04[1]; 76G/09, 76G/10[2] |
| Land Tenure | Surface IOL, Subsurface IOL[1]; Crown, Subsurface IOL[2] |
| Location | 365 km southwest of Kugluktuk[1], 390 km southwest of Kugluktuk[2] |

The Back River gold project comprises six properties, including Bath, Boot, Boulder, and Del, and is located in the northeastern corner of the Slave structural province. The project is currently focused on the other two properties, George and Goose. Both properties host multiple deposits of banded iron formation (BIF)-hosted gold mineralization.

The 2013 program at Back River had a budget of $70 million and included diamond drilling, engineering and environmental studies, and infrastructure work. Much of this work was designed to support the PFS, released October 2013, and the subsequent feasibility study, as well as the DEIS which the company plans to submit in the first quarter of 2014.

The Goose property includes the Goose Main, Llama and Umwelt deposits each of which have a NI 43-101-compliant resource, as well as a number of earlier stage targets, including the Boomerang, Camp, Echo, Goose Neck, Goose Hook, Goose Tail, Resurgence, and Wing zones. Some exploration drilling in 2013 targeted Echo, a mineralized zone discovered in 2009, as well as the Boomerang and Wing zones.

Drilling at the Llama deposit in 2013 was focused on converting existing resources to the measured and indicated categories within the proposed pit shell. Thirty-three drill holes were completed for this purpose, with best results of 19.86 grams per tonne (g/t) gold (Au) over a 16.65 m interval from hole 13GSE292, and 11.56 g/t Au over 32.40 m from 13GSE285B. Additional resource conversion drilling to upgrade from the inferred to indicated resource categories was targeted at the portions of the Llama deposit that are proposed to be extracted via underground mining.

Signpost at Sabina's Goose property, Back River project – *Courtesy of AANDC*

Work on the Umwelt deposit also focused primarily on resource conversion within the pit shell. A total of 52 drill holes were completed. Highlights from this program include 21.96 g/t Au over 19.72 m from hole 13GSE377 and 17.30 g/t Au over 25.60 m from 13GSE386.

Eighteen drill holes were completed in 2013 on the Echo zone to better define the deposit. Drilling identified Echo as being open to the northeast and at depth, and returned results of 13.13 g/t Au over 12.55 m from hole 13GSE435 and 7.73 g/t Au over 12.20 m from 13GSE395 that suggest gold grades improve at depth. The 2013 drilling, combined with that completed in 2009 and 2010, will be used to calculate a resource estimate for this deposit.

The George property includes five deposits: Locale 1, Locale 2, Lone Cow Pond, GH, and Slave. Work in 2013 focused on the Locale 2 and Lone Cow Pond deposits. A total of 16 drill holes completed at the Locale 2 deposit focused on the Locale 2 Gap zone (a 120 m wide area at the south end of the deposit without previous drilling) and the Locale 2 Hinge zone. From the 13 holes completed on the Gap zone, best results were returned of 8.96 g/t Au over 18.50 m from hole 13GRL103 and 13.55 g/t Au over 7.00 m from 13GRL102. The drilling into the Hinge zone returned results of 18.34 g/t Au over 8.75 m from hole 13GRL104, and 7.43 g/t Au over 9.00 m from 13GRL095. This latter drill hole also intersected a second zone of 9.35 g/t Au over 7.75 m deeper in the hole.

Forty-three drill holes were completed at the Lone Cow Pond South zone to evaluate the potential for shallow resources suitable for open pit extraction and to supplement the existing proposed underground mine there. Positive results of 24.96 g/t Au over 11.25 m from hole 13GRL152 and 13.46 g/t Au over 12.75 m from 13GRL150 were returned from this program.

Infrastructure work on the Goose property included establishment of a quarry and a mobile crushing plant to provide fill for an all-weather airstrip at Goose Camp. This fill material was also used to create a base for an expanded long-term fuel storage facility at the camp. The airstrip was completed in 2013, and will reduce the reliance on ice landing strips to support re-supply of the camp.

Sabina released an updated NI 43-101 resource for Back River in February 2013 that incorporates results of the 2012 drilling. The estimate consists of measured and indicated resources of 24.2 million tonnes grading 6.0 g/t Au, as well as inferred resources of 7.7 million tonnes grading 7.8 g/t Au, for more than 6.5 million total contained ounces. The positive PFS received by the company in October 2013 only incorporates a fraction of that resource, as it does not consider inferred resources. The PFS outlines an operation which would process 5,000 tonnes of ore per day, for an average production of 287,000 ounces of gold per year. This would continue over a mine life of more than 8 years, for a total production of 2.4 million ounces of gold. The base price of gold used in the study was $1,350 per ounce, with scenarios at $100 and $200 above and below the base price also being considered. The PFS proposes mining from six open pits (Goose Main, Llama, Umwelt, Locale 1, Locale 2 and Lone Cow Pond North), with most underground mining occurring at Umwelt.

| 222 223 224 225 226 | COMMITTEE BAY (ANURI-RAVEN[1], FOUR HILLS-COP[2], INUK[3], THREE BLUFFS[4], WEST PLAINS[5]) |
|---|---|
| **Operator/Owner** | North Country Gold Corp. |
| **Commodity** | Gold |
| **NTS** | 56K07 – 56K/10[1]; 56K/06, 56K/07, 56K/10, 56K/11[2]; 56P/07[3]; 56J/10 – 56J/15[3]; 56K/03, 56K/04, 56K/06[5] |
| **Land Tenure** | Crown, Surface IOL |
| **Location** | 245 km southwest of Kugaaruk[1], 265 km southwest of Kugaaruk[2], 130 km south of Kugaaruk[3], 215 km south of Kugaaruk[4], 300 km southwest of Kugaaruk[5] |

North Country Gold holds the mineral tenure covering the 300 km-long Committee Bay greenstone belt. Most work in recent years has focused on the 4.1 km long Walker Lake Trend, which includes the company's flagship Three Bluffs deposit, and the Antler and Hayes zones. Several other target areas have been identified within the belt, including Anuri-Raven, Four Hills-Cop, Inuk and West Plains. Most gold mineralization at Three Bluffs is hosted within a steeply-dipping BIF unit.

A total of 7,005 m of diamond drilling was carried out at Three Bluffs in 2012, most focused on extending known mineralization at vertical depths in excess of 300 m. As a result of this drilling, an updated NI 43-101-compliant resource estimate for Three Bluffs was published in April 2013. The deposit is estimated to contain 4.32 million tonnes of indicated resources at an average grade of 4.91 g/t Au, and 5.52 million tonnes of inferred resources at 5.43 g/t Au, for a total of almost 1.65 million ounces of gold. Compared to the previous estimate published in April 2012, this represents a 16 per cent increase of inferred resources.

No work was reported at the Committee Bay project in 2013.

| 227 228 229 230 | HOPE BAY (BOSTON[1], CHICAGO[2], DORIS[3], MADRID[4]) |
|---|---|
| **Operator/Owner** | TMAC Resources Inc. |
| **Commodity** | Gold |
| **NTS** | 760/08, 760/09, 760/10, 760/15, 760/16, 77A/03 |
| **Land Tenure** | Crown, Surface IOL, Subsurface IOL |
| **Location** | 170 km southwest of Cambridge Bay[1], 180 km south of Cambridge Bay[2], 125 km southwest of Cambridge Bay[3], 130 km southwest of Cambridge Bay[4] |

In March, 2013, TMAC Resources Inc. acquired the Hope Bay gold project from the previous owner, Newmont Mining Corporation, through its subsidiary Hope Bay Mining Limited. Newmont placed the project into care and maintenance status in 2012. The project occupies most of the 80 km long and 7 to 20 km wide Hope Bay greenstone belt, and is located within the Bathurst structural block of the northeast Slave Structural Province.

The Hope Bay belt includes three major target areas. From north to south, they are the Doris deposits, the Madrid trend, and the Boston deposit. Gold mineralization in the four Doris deposits (North, Lower, Connector, and Central) occurs within steeply dipping quartz-carbonate vein systems hosted by folded and metamorphosed pillow basalts over a strike-length of approximately 3 km.

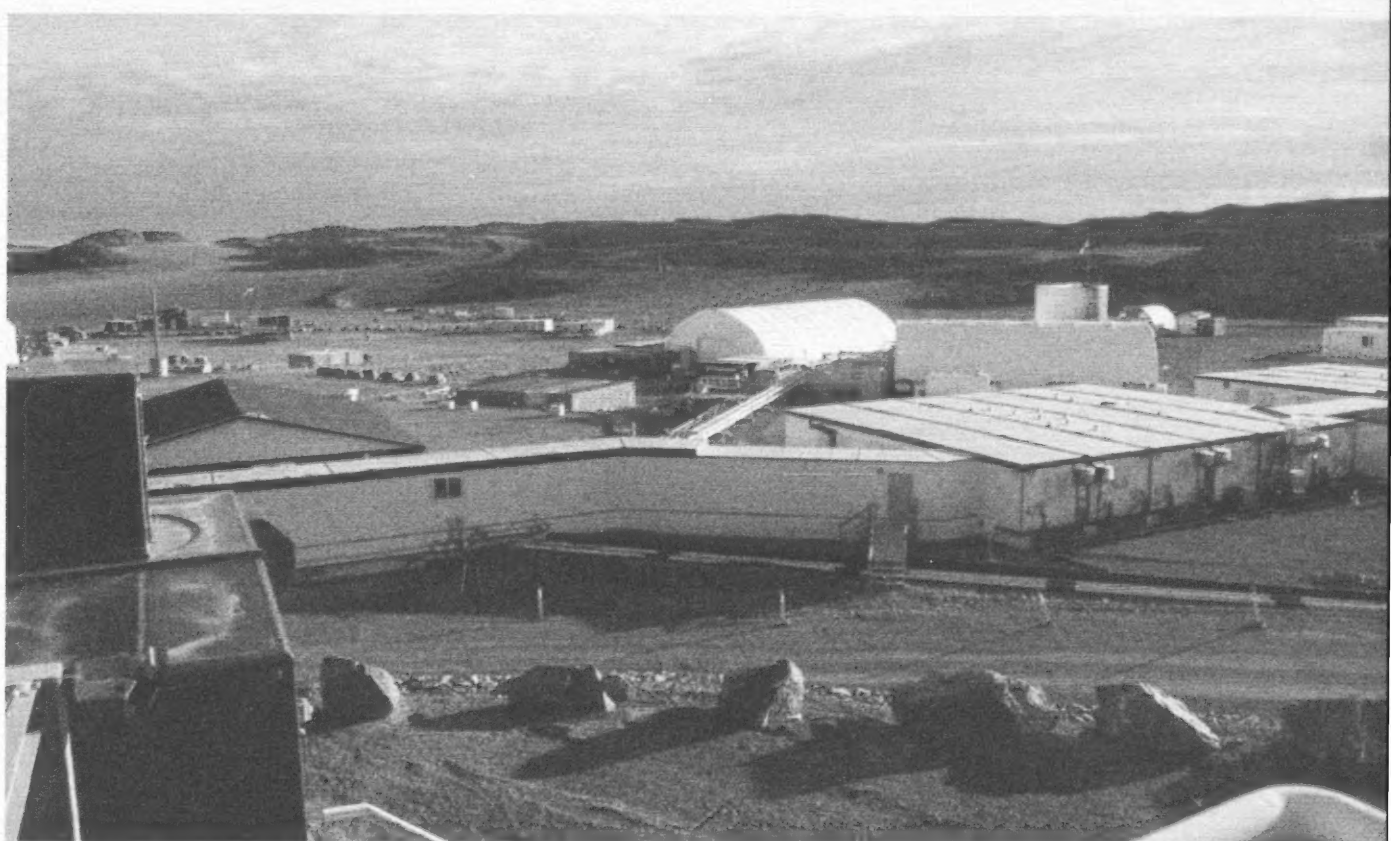
Gold mineralization in the Madrid trend is lithologically and structurally controlled, and is hosted within a north-south striking assemblage of mafic metavolcanic rocks over a strike-length of approximately 6 km. Many deposits and mineralized zones have been identified within the Madrid trend, but the focus of work has been on the Naartok, Patch, and Wolverine zones.

The Boston deposit is located in the southern portion of the Hope Bay belt. Gold mineralization occurs in steeply-dipping quartz-carbonate vein sets, and locally in steeply-dipping zones of brecciated mafic metavolcanic rocks, hosted within folded metavolcanic and metasedimentary rocks.

With the completion of the project acquisition, TMAC inherited more than $800 million worth of exploration data, development, and infrastructure from previous operators. This total includes underground development at both Doris and Boston. The company re-opened the Doris camp in April and activated a variety of environmental monitoring studies. A drill program was then initiated in June 2013. A total of 29,622 m of diamond drilling was completed in 63 holes. The focus of work in the first half of the season was on "greenfields" exploration targets which had little or no drilling completed in the past. In the latter half of the program, when limited daylight and increasingly inclement weather made helicopter-supported drill moves difficult, the focus was shifted to expanding the resource at the Doris deposits. A sealift program was also carried out to re-supply the Doris camp and to return equipment to site that had been in storage.

In terms of permitting, TMAC signed a five year renewal of the commercial lease for Doris North with the Kitikmeot Inuit Association, and received approval for a 10 year renewal of its Type A Water License for that deposit. Combined with the Doris North project certificate already in place, all necessary permits are secured to allow mining and milling to start at that deposit. This work could start as early as Q4 2015.

In November 2013, TMAC announced the completion of a preliminary economic assessment and an updated NI 43-101 resource estimate for the Hope Bay project. The preliminary economic assessment includes sequential development of the Doris, Madrid and Boston deposits, with relatively low start-up capital costs due to the infrastructure already in place. These operations would have a combined mine life of 10 years, and produce an average of 224,000 ounces of gold per year. The estimate includes 8.2 million tonnes of measured and indicated resources grading 10.56 g/t Au as well as 5.1 million tonnes of inferred resources at an average grade of 10.94 g/t Au, for more than 4.5 million total contained ounces of gold.



Hope Bay camp – *Courtesy of AANDC*

Winter drilling at Hackett – *Courtesy of AANDC*

| 231 | ITCHEN LAKE |
|---|---|
| Operator/Partner | Transition Metals Corp., Nunavut Resources Corp. |
| Commodity | Gold |
| NTS | 76E/12, 86H/09, 86H/10 |
| Land Tenure | Crown, Surface IOL |
| Location | 270 km south of Kugluktuk |

The Itchen Lake gold project which straddles the Nunavut-NWT border is being explored under a strategic alliance between Transition Metals Corp., newly merged with HTX Minerals Corp., and Nunavut Resources Corporation. In the past, the property has received considerable exploration interest, with approximately 80 drill holes completed on the property between 1963 and 1995, and 74 gold occurrences defined over a 40 km strike-length of BIF.

Before the Transition-HTX merger, HTX completed two sampling programs in 2012 on known occurrences to verify historic sampling results. A total of 102 samples were collected from nine showings. The best results were returned from showing R61 which is 200 m long and up to 4.2 m wide. Nine samples collected in 2012 had assays between 0.09 g/t Au and 59.00 g/t Au, as compared to thirteen historic samples with assays between 2.4 and 42.9 g/t Au. The company also undertook a compilation of historic exploration data for the property.

The 2013 exploration program included an 800 line-km airborne EM and magnetic geophysical survey over the property. More than 60 conductivity anomalies were identified, with some located along the same trends as known gold occurrences. Reconnaissance surface exploration including field mapping and sampling was completed in August, and results are intended to help with drill targeting. The strategic alliance also initiated a remote predictive mapping research project which will incorporate Earth observation data, geophysical data, and geochemical surveys and other geoscience information to produce predictive maps. These maps will aid in targeting for future field activities.

| X 232 233 | LUPIN MINE[1], ULU[2] |
|---|---|
| Operator/Owner | Elgin Mining Inc. |
| Commodity | Gold |
| NTS | 76E/10, 76E/11, 76E/14[1]; 76L/14, 76L/15[2] |
| Land Tenure | Crown[1], Subsurface IOL[2] |
| Location | 280 km southeast of Kugluktuk[1], 200 km southeast of Kugluktuk[2] |

The past-producing Lupin gold mine and the Ulu gold project were both acquired by Elgin Mining in 2011. The Lupin deposit was discovered in 1961, and was in production from 1982 through 2004, with final closure in February 2005. Historic production is estimated at 3.36 million ounces gold at an average grade of 8.9 g/t.

Since acquiring the property, Elgin has focused its efforts on identifying mineralization at the West Zone South of Shaft, which had received only limited exploration and development from past operators. Based on a historic drill database, a NI 43-101-compliant estimate for this zone was published in 2012 that outlined in excess of 350,000 ounces of inferred resources. This estimate did not incorporate the results of Elgin's 2011 and 2012 drilling into the zone.

Planned work at Lupin in 2013 included re-opening the underground development to evaluate its condition and that of related infrastructure, with an eye towards resuming production in Q4 of 2015. However, early in 2013, Elgin announced cost-cutting measures that saw planned work curtailed at Lupin, and the site was placed into care and maintenance status indefinitely.

The Ulu gold project is located 155 km north of the Lupin mine. Most work on the property by previous operators was focused on the Flood deposit – more than 135,000 m of drilling and 1.7 km of underground development was completed. A NI 43-101 compliant resource for the deposit published in 2011 estimates an indicated resource of 751,000 tonnes of ore at an average grade of 11.37 g/t Au, and an inferred resource of 418,000 tonnes at an average grade of 10.61 g/t Au, totaling more than 400,000 ounces of gold. A surface exploration and diamond drilling program was carried out on the property in 2012, but no results from this program have been released. Like Lupin, the Ulu property has been put into care and maintenance status indefinitely.

| 234 | WISHBONE GOLD |
|---|---|
| Operator/Owner | Sabina Gold & Silver Corp. |
| Commodity | Copper, Silver, Zinc, Lead, Gold |
| NTS | 76F/09, 76F/16, 76G/02, 76G/03, 76G/05, 76G/06, 76G/12, 76G/13 |
| Land Tenure | Crown, Surface IOL |
| Location | 425 km southeast of Kugluktuk |

Sabina's Wishbone Gold project occupies the south-eastern portion of the Wishbone greenstone belt that also hosts the Hackett River deposits. The company sold the Hackett River project and a substantial portion of Wishbone to Xstrata Zinc Canada (now Glencore Xstrata) in 2011, retaining those claims viewed as prospective for BIF-hosted gold, analogous to the primary host rocks at the Back River project. Sabina also acquired additional claims to bring the property to its current size of approximately 79,000 ha.

Multiple gold prospects have been identified on the property over the last several years, including Rocky, Bullwinkie, Lucky 7, Haunaco, Tauntaun, Malley, Dark Side, and Hawaii.

In 2012, 33 holes were drilled for a total of 7,479 m on the Lucky 7, Tauntaun, Rocky, and Haunaco prospects. A variety of surface exploration work including ground geophysical surveys, geological mapping, prospecting and soil sampling was also carried out at the Dark Side, Lucky 7, Malley, Hawaii, Hawaii South, and Haunaco prospects; anomalous gold values were returned from samples collected at Dark Side, the Hawaii prospects, Malley and Tauntaun.

A reconnaissance surface exploration program was carried out on three blocks of claims within the property in 2013, and included prospecting and 1:10,000 scale geological mapping. Program objectives were to confirm the presence of BIF on the claims, and sample any BIF if found, as well as to map and characterize historically identified volcanic rocks. A total of 58 samples were collected in 2013, some of which returned anomalous gold and base metal values. Further mapping and follow-up of gold anomalies is planned for 2014.

Fall colours on the tundra, near Kugluktuk – *Courtesy of AANDC*

Muskox, Kitikmeot region – *Courtesy of AANDC*

MMG Resources Inc. owns the **Gondor** copper-lead-zinc deposit, located southeast of Izok Lake. A historic, non-NI 43-101 compliant resource estimates the deposit contains 4.38 million tonnes of ore at average grades of 9.7% Zn, 1.2% Pb, 0.1% Cu, 0.78 g/t Au and 64.60 g/t Ag. The last reported work on the property was in 2010.

The **Hammer** project is operated by Stornoway Diamond Corporation, and is named for the Hammer kimberlite discovered in 2009. In 2011, Stornoway and partner North Arrow Minerals Inc. conducted a drill program to recover sufficient material from the kimberlite for an initial diamond grade determination. No results from this program have been released.

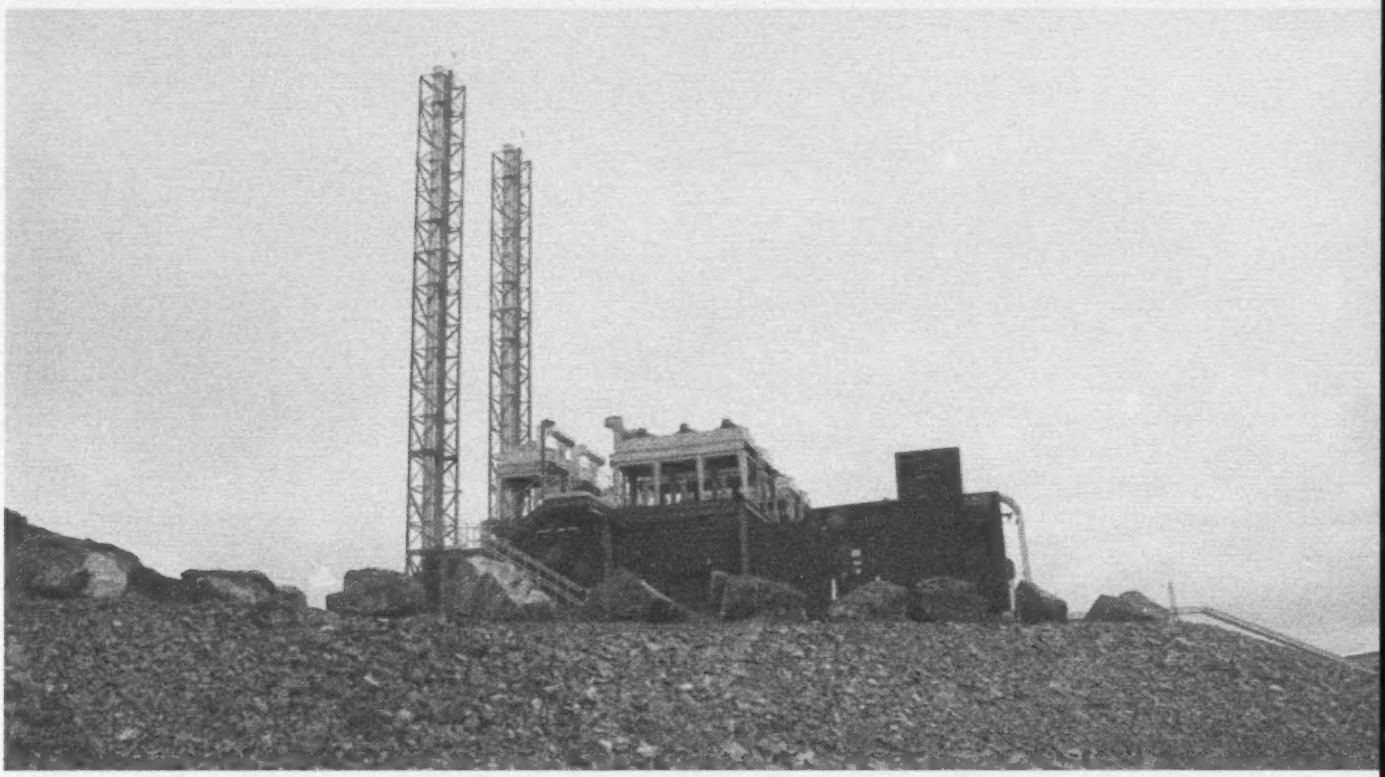
Shear Diamonds Ltd. owns the past-producing **Jericho** diamond mine. The mine site has been in a state of temporary closure since September 2012. After being advised by the company that it was unable to meet the terms of its permits and terms of a letter of direction issued by AANDC field inspectors, AANDC undertook monitoring efforts at Jericho and acted to mitigate environmental risks associated with the site. The company remains accountable for the site during this period of temporary closure.

Adamera Minerals Corp. (formerly Diamond North Resources Ltd.) controls the **Amaruk** project, which has diamond, gold and nickel potential, and the neighbouring **Halkett Inlet** gold project. Work was last reported at both properties in 2011.

The **Oro** (Hope Bay) gold project owned by North Arrow Minerals Inc. is located adjacent to TMAC Resources' Hope Bay project. The last reported work on the property was in 2011. TMAC Resources controls the **Elu Belt** gold project east of its Hope Bay project. Reconnaissance exploration was carried out in 2011, but no further work has been reported.

Hornby Bay Mineral Exploration Ltd. owns the **Coppermine** uranium project in the western Kitikmeot. A seismic survey to aid in drill-targeting was announced in 2011 to follow-up the 2010 drill program at the property. The seismic program has yet to be completed.

| COMMODITY | PROJECT | OPERATOR |
|---|---|---|
| **BASE METALS** | | |
| 129 | Gondor | MMG Resources Inc. |
| **DIAMONDS** | | |
| 187 | Amaruk | Adamera Minerals Corp. |
| 188 | Hammer | Stornoway Diamond Corporation |
| 189 | Jericho Mine | Shear Diamonds Ltd. |
| **GOLD** | | |
| 246 | Amaruk Gold | Adamera Minerals Corp. |
| 247 | Elu Belt | TMAC Resources Inc. |
| 248 | Halkett Inlet | Adamera Minerals Corp. |
| 249 | Oro | North Arrow Minerals Inc. |
| **URANIUM** | | |
| 399 | Coppermine | Hornby Bay Mineral Exploration Ltd. |



Power plant at the Hope Bay site – *Courtesy of AANDC*

## Kivalliq Region

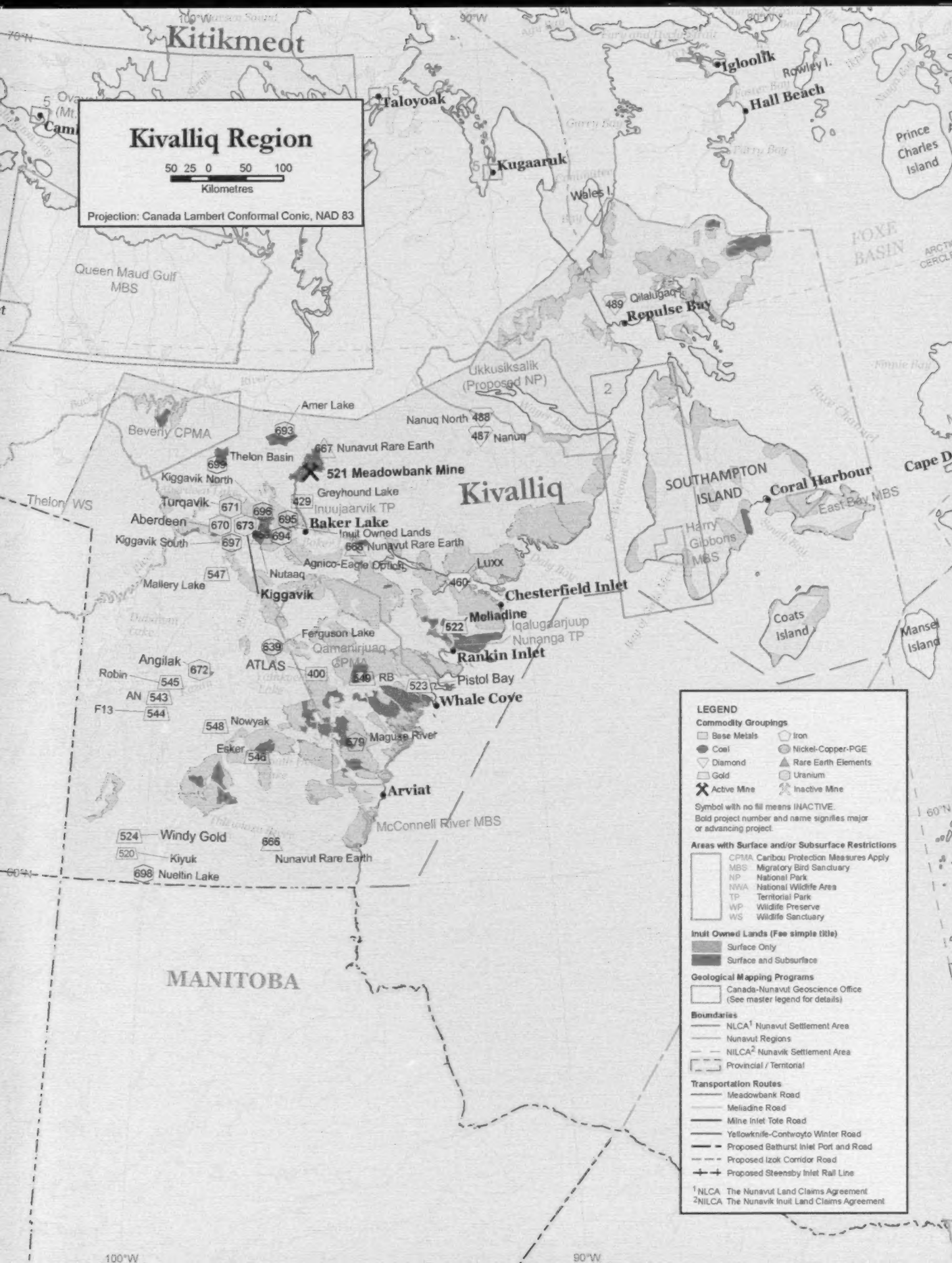
The central region in Nunavut is the Kivalliq, located northwest of Hudson Bay and sharing a border with the Northwest Territories and Manitoba. The smallest of the three regions, the Kivalliq covers an area of 445,109 square kilometres. Bedrock of the region is characterized by Archean and Proterozoic plutonic rocks, sedimentary basins, and greenstone belts of the Western Churchill Province (Rae and Hearne domains). Younger Paleozoic strata of the Hudson Bay Lowlands cover parts of Southampton and Coats islands. The region's diverse geology hosts a number of mineral occurrences and deposits, particularly gold, uranium, nickel and platinum group elements, base metals, rare earth elements (REE), and diamonds. Past-producing mines in the Kivalliq are the North Rankin Nickel Mine at Rankin Inlet and the Cullaton/Shear Lake Gold Mine, north of Nueltin Lake in the southern part of the region.

Exploration activity in 2013 was primarily for gold and uranium but at reduced levels when compared to the previous three years. Exploration companies generally use Rankin Inlet and Baker Lake as staging points for their activities. Arviat, Chesterfield Inlet, Coral Harbour, Repulse Bay, and Whale Cove also benefit from exploration activities as the need for supplies and services grows. An estimated $115 million was spent on mineral exploration and deposit appraisal in 2013, and an additional $68 million was spent on the development of mine infrastructure.

About 80 kilometres due north of Baker Lake lies Meadowbank gold mine, currently the sole operating mine in Nunavut. Agnico-Eagle Mines Ltd. (AEM) maintained lower operating costs in 2013 and has been reporting good production results despite lower prices for gold. The company employs more than 700 people for its mine operation and supports a variety of businesses in Baker Lake and elsewhere in Nunavut. At the Meliadine project, AEM's other gold property in the Kivalliq, the company augmented facilities at the exploration camp to accommodate 200 persons. As part of advancing development, a 23 kilometre long all-weather access road from Rankin Inlet to the Meliadine gold project was completed. The company submitted a Draft Environmental Impact Statement (DEIS) to the Nunavut Impact Review Board (NIRB) for Meliadine; this DEIS is currently under review.

West of Baker Lake, several unconformity-type uranium deposits similar to those found in Saskatchewan's Athabasca Basin have been discovered in Proterozoic rocks of the Thelon Basin. Some are considered to have promising economic potential. The most advanced uranium project in the Kivalliq region is AREVA Resources Canada's Kiggavik project. The company has received the technical review of the DEIS for the project from NIRB and is preparing the Final Environmental Impact Statement for September 2014.

Winter drilling at Rusty Zone, Kiyuk Lake project – *Courtesy of Prosperity Goldfields Corp.*


Kivalliq Region
50 25 0 50 100
Kilometres
Projection: Canada Lambert Conformal Conic, NAD 83
Kitikmeot
Kivalliq
Taloyoak
Kugaaruk
Igloolik
Hall Beach
Rowley I.
Prince Charles Island
Wales I.
Repulse Bay
Qilalugaq
489
Queen Maud Gulf MBS
Ukkusiksalik (Proposed NP)
Amer Lake
Beverly CPMA
693
Nanuq North 488
487 Nanuq
667 Nunavut Rare Earth
699
Thelon Basin
521 Meadowbank Mine
Kiggavik North
Greyhound Lake
Inuujaarvik TP
Turqavik 671
429
Thelon WS
Aberdeen 670
673
696
695
Baker Lake
Inuit Owned Lands
Kiggavik South 697
694
668 Nunavut Rare Earth
Agnico-Eagle Option
Luxx
Nutaaq
547
Mallery Lake
Kiggavik
460
Chesterfield Inlet
Meliadine
522
Iqalugaarjuup Nunanga TP
Ferguson Lake
Qamanirjuaq CPMA
839
Rankin Inlet
Angilak 672
ATLAS
400
549 RB
523
Pistol Bay
Whale Cove
Robin 545
AN 543
F13 544
548 Nowyak
579 Maguse River
Esker 546
Arviat
McConnell River MBS
524 Windy Gold
520 Kiyuk
698 Nueltin Lake
666
Nunavut Rare Earth
MANITOBA
SOUTHAMPTON ISLAND
Coral Harbour
East Bay MBS
Harry Gibbons MBS
Coats Island
Mansel Island
Cape D
FOXE BASIN
LEGEND
Commodity Groupings
Base Metals
Iron
Coal
Nickel-Copper-PGE
Diamond
Rare Earth Elements
Gold
Uranium
Active Mine
Inactive Mine
Symbol with no fill means INACTIVE.
Bold project number and name signifies major or advancing project.
Areas with Surface and/or Subsurface Restrictions
CPMA Caribou Protection Measures Apply
MBS Migratory Bird Sanctuary
NP National Park
NWA National Wildlife Area
TP Territorial Park
WP Wildlife Preserve
WS Wildlife Sanctuary
Inuit Owned Lands (Fee simple title)
Surface Only
Surface and Subsurface
Geological Mapping Programs
Canada-Nunavut Geoscience Office (See master legend for details)
Boundaries
NLCA[1] Nunavut Settlement Area
Nunavut Regions
NILCA[2] Nunavik Settlement Area
Provincial / Territorial
Transportation Routes
Meadowbank Road
Meliadine Road
Mine Inlet Tote Road
Yellowknife-Contwoyto Winter Road
Proposed Bathurst Inlet Port and Road
Proposed Izok Corridor Road
Proposed Steensby Inlet Rail Line
[1]NLCA The Nunavut Land Claims Agreement
[2]NILCA The Nunavik Inuit Land Claims Agreement

## Base Metals

| 400 | ATLAS |
|---|---|
| Operator/Owner | Anconia Resources Corp. |
| Commodities | Zinc, Silver, Gold, Copper, Lead |
| NTS | 55L/11, 55L/12 |
| Land Tenure | Crown, Surface IOL |
| Location | 165 km west of Whale Cove |

The ATLAS project consists of thirteen claims totaling 10,113 hectares (ha) hosting two stratiform zinc, silver, and copper bearing volcanogenic massive sulphide (VMS) exploration targets; ATLAS-1 and ZAC (20 km northeast of ATLAS-1). ATLAS-1 is manifested as a 1.5 km-long continuous magnetic, electromagnetic (EM), and gravity signature with exposures of massive sulphides occurring over a distance of 500 metres. In 2012, 1,790 m of drilling revealed evidence of a VMS-type deposit with alteration in the felsic footwall, bands of massive sulphides layered with volcaniclastics and cherty iron formation at the top of the sequence. These units are overlain by unaltered mafic volcanics. All of these features suggest the presence of a hydrothermal system. ATLAS-1 mineralization remains open along strike and continues to depths of at least 200 m. Assay results from 2012 indicate higher values of gold and silver mineralization than typically found in VMS deposits, suggesting that a second stage of mineralization may have developed.

Encouraging results reported from the limited exploration work in 2012 prompted an exploration program in 2013. Follow-up work on core from the 2012 program included re-logging of the core, petrographic studies, and additional geochemical analyses. This work was conducted to provide insight on the nature of the gold-silver mineralization, suspected to be a later event, as well as to better delineate the extent of alteration beyond the zone where sulphides are found. Results found precious metal enrichment is evident within altered wall rock adjacent to barren quartz-veins and beyond the intervals marked by massive sulphides. Detailed mineralogical studies on the core identified both native gold and silver, electrum, silver sulphide (acanthite) and silver antimonide (allargentum).

The drilling program in 2013 at the ZAC occurrence consisted of five drill holes, totaling 1,306 m. The aim was to further explore the occurrence at depth and along strike, to evaluate the economic potential of the target, and to test associated geophysical anomalies. Results confirmed the presence of a VMS setting at ZAC, with 110 m of disseminated and stringer sulphides including chalcopyrite in one hole (ZAC-13-05) and 4.8 m of massive sulphides in another drill hole (ZAC-13-01). Assay results are pending.

The company plans to follow up in 2014 with further drilling to evaluate the extent of the mineralization at ATLAS-1 and to test the Silty Lake geophysical anomaly identified in an EM survey.

Cutting core at Kiyuk Lake project – *Courtesy of Prosperity Goldfields Corp.*

## Diamonds

| 460 | LUXX |
|---|---|
| Operator/Owner | North Arrow Minerals Inc. |
| Commodity | Diamonds |
| NTS | 55O/12 |
| Land Tenure | Crown |
| Location | 60 km northwest of Chesterfield Inlet |

North Arrow Minerals Inc. acquired the Luxx project in August 2013. The project area covers about 40,400 ha and consists of three prospecting permits. The project is part of an option agreement with Anglo Celtic Exploration Ltd., along with the Mel diamond project in the Qikiqtani region.

The Luxx property is located about 20 km from the known Churchill kimberlite occurrences near Chesterfield Inlet. North Arrow Minerals is investigating unexplained trains of kimberlite indicator minerals (garnet and ilmenite) identified from hundreds of till sample results published in assessment report data. The company conducted an airborne magnetic survey of the property and completed a till sampling program near prospective target areas to better define the types of indicator minerals.

Results of indicator mineral analyses and aeromagnetic survey data will be used to prioritize areas for follow-up work in 2014.

Completed road from Meliadine to Rankin Inlet
*– Courtesy of AANDC*

## GOLD

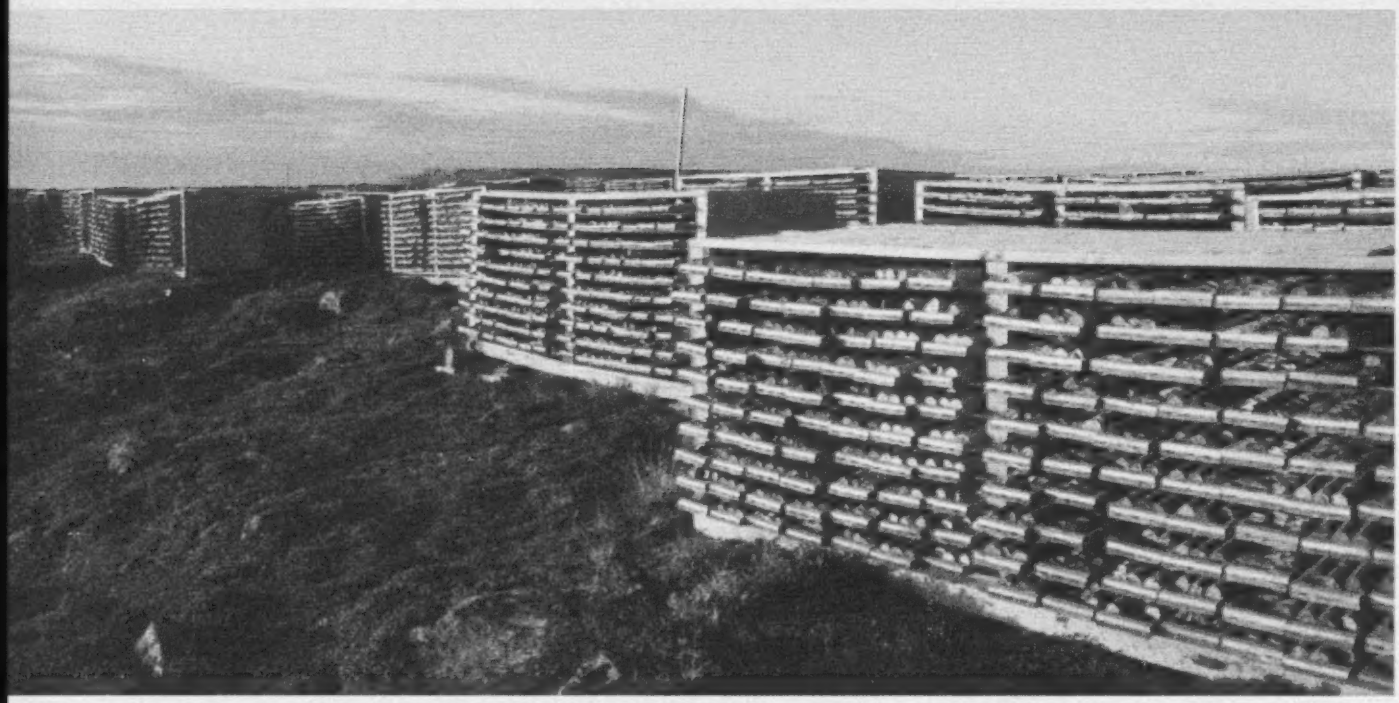
| 520 | KIYUK |
|---|---|
| Operator/Owner | Prosperity Goldfields Corp. |
| Commodity | Gold |
| NTS | 65C/07 – 65C/10 |
| Land Tenure | Crown |
| Location | 350 km west of Arviat |

The Kiyuk gold project is located in the southwestern Kivalliq region, and covers approximately 61,935 ha of Crown land. The property includes several prospects: Rusty, Gold Point, Cobalt, Amundsen, North Snake, Bancroft, Rasmussen, and Anderson. Initial work in the area was done by the Geological Survey of Canada in the late 1970s, and gold mineralization was first discovered in the early 1990s. Prosperity has been active on the project since 2011.

The mineralization at Kiyuk occurs in a sequence of conglomerates and breccias located along an unconformity between two thick sedimentary units, the underlying Hurwitz Group and the overlying Kiyuk Group. The host rocks vary from brecciated sandstone at Rusty, to altered felsic volcaniclastic rocks at Cobalt and Amundsen, to altered polymictic conglomerates at Gold Point. Gold mineralization is associated with sulphide minerals, specifically pyrrhotite, pyrite, and magnetite, but also occurs as native gold grains, some of which are pristine.

Prosperity's first field season in 2011 included prospecting, geochemical sampling, and a 2,700 m drill program; significant results were returned from Rusty, Gold Point, and Cobalt. The company followed up those results with a 2012 winter drill program focused on Gold Point and Cobalt totaling 2,652 m and an aeromagnetic survey. The most significant results from the 2012 drilling program included 12 m at 3.9 g/t Au from Gold Point and 12 m at 2.3 g/t Au from Amundsen discovered that season. The company also collected till samples for a geochemical survey.

In 2013, Prosperity ran a winter drill program, with a total of 4,427 m drilled in 20 holes. Notable results from the drilling include 35.9 m of 4.95 g/t Au from the Rusty zone, which remains open to the east-southeast and at depth. The company followed up on the drilling results in the summer of 2013 with a short field program focused on re-logging of the previously drilled core to determine which of the several hydrothermal vein systems on the property hosts the gold mineralization. This re-logging work determined that the semi-massive sulphides and magnetite-rich breccia host the highest gold grades found to date. The company also completed legal surveying at three of its claims to start the process to convert the claims to leases.



Core racks at sunset, Meadowbank Mine – *Courtesy of AANDC*

| 521 | MEADOWBANK MINE |
|---|---|
| **Operator/Owner** | Agnico-Eagle Mines Limited |
| **Commodity** | Gold |
| **NTS** | 56D/13, 56E/04, 66A/16, 66H/01, 66H/02 |
| **Land Tenure** | Crown, Subsurface IOL |
| **Location** | 75 km north of Baker Lake |

In April 2013, the hallmark millionth ounce of gold was poured at the Meadowbank Mine. Now in its fourth year of production, Meadowbank is the only operating mine in Nunavut. It is an open pit operation consisting of the Portage, Goose Island and Vault deposits; these three deposits make up the mine plan. Goose Island and Portage deposits and the entire infrastructure are on Crown mining leases, whereas the Vault deposit is within Nunavut Tunngavik Incorporated (NTI) Mineral Production Leases. The entire Meadowbank property consists of 66,933 ha and is completely owned by AEM. The mine is the company's largest gold producer and currently employs a workforce of about 790 people. Exploration expenditures in 2013 were modest at about $4 million whereas planned capital spending for mine development was $39 million.

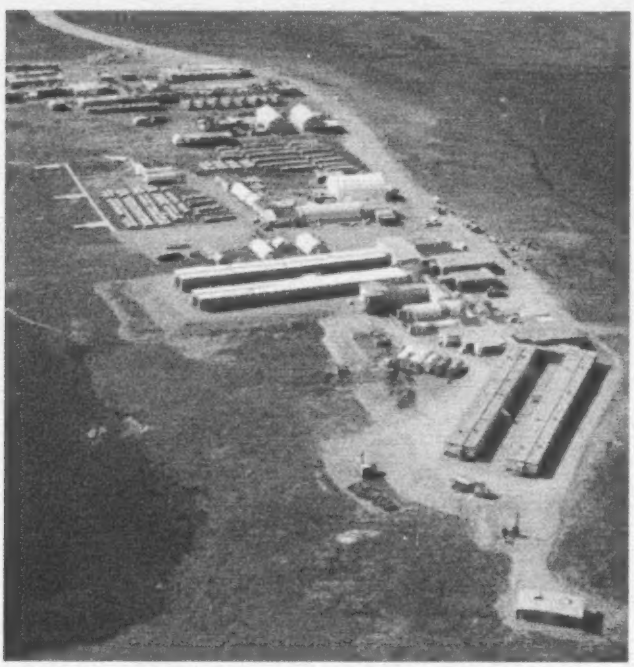
A variety of rock types of the Neoarchean Woodburn Lake Group characterize the geology of the Meadowbank Mine, including quartzites, iron formation, ultramafic and felsic to intermediate volcano-sedimentary rocks. The gold is mainly associated with pyrite-pyrrhotite mineralization replacing magnetite in the auriferous iron formation rocks. The host rock and gold deposits are at greenschist to amphibolite grades of metamorphism, preserved in tightly folded and faulted structural belts trending between regional-scale granitic plutons.

The Portage deposit is mined from a series of connected open pits over a distance of 1.85 km. The gold is hosted in magnetite-rich iron formation units characterized by complex folding along a north-northwest trending direction. Fold limbs dip moderately to the west and mineralization lenses in the lower limb are typically 6 to 8 m thick with a true thickness of 3 to 13 m, but can attain thicknesses of 20 m near the hinge zone. The Goose Island gold deposit lies 500 m south of Portage and is associated with similar host rocks striking south for more than 750 m along the Meadowbank Trend. The Vault deposit, located three kilometres northeast of the Portage pit, consists of gently dipping intermediate volcanic rocks which are sericitized and silicified over widths of several metres containing disseminated sulphides. The main gold-bearing zone is typically 8 to 12 m thick and

continuous for several hundred metres along sheared horizons. Additional mineralized lenses from 3 to 5 m thick can occur in the hanging wall. To accommodate pit expansion, dewatering of the lake adjacent to Vault occurred throughout 2013.

Significant efforts by AEM have improved operational performance, after the company faced numerous challenges during the first two years of Meadowbank's operation. There has been an overall decline in mine site costs since Q4 of 2011 and consistently increasing volumes of ore milled, exceeding 11,000 tonnes per day, since the secondary crusher was put into production in mid-2011. A new pit design introduced in 2012 significantly reduced the volume of lower grade ore, but also lowered the estimated reserves by 1.3 million ounces. Higher grades, however, from operations at the Goose Pit led to greater gains in gold production, particularly where determinations from initial block models had underestimated gold values.

In the first nine months of 2013, Meadowbank reached both higher production and lower costs compared to the same period in 2012. From Q1 to Q3, the mine produced 307,180 ounces of gold at a total cash cost of $828 per ounce. These gains are credited to higher than expected grades being realized from Goose Island pit and improved mill recovery rates, estimated at 94 per cent. The mine is currently expected to produce more than the 2013 forecast of 360,000 ounces and likely will exceed its 2012 record production of 366,030 ounces.



Aerial view of Meliadine camp – *Courtesy of AANDC*

Proven and probable open pit reserves at Meadowbank are 2.3 million ounces from 25 million tonnes of ore grading 2.8 g/t Au. Similarly, indicated and inferred open pit and underground resource estimates presently are estimated at 13.9 million tonnes combined, with an average grade of 2.8 g/t Au for a projected total of 1.2 million ounces of gold.

The current mine-life has been extended marginally, in part due to the optimization of the mine plan at Vault, and is now forecast to operate into 2018.

| 522 | MELIADINE |
|---|---|
| Operator/Owner | Agnico-Eagle Mines Limited |
| Commodity | Gold |
| NTS | 55J/13, 55J/14, 55K/16, 55N/01, 55N/02 |
| Land Tenure | Crown, Subsurface IOL |
| Location | 20 km north of Rankin Inlet |

The Meliadine project is owned by Agnico-Eagle Mines Ltd. (AEM) and covers 55,892 ha. The mineral tenure of the property spans almost 80 km and is comprised of Crown mineral claims (50,334 ha), Crown mineral leases (931 ha), and NTI Inuit Owned Lands (IOL) Exploration Agreements (4,827 ha). The Meliadine property was originally acquired by AEM from Comaplex Minerals Corp. in 2010. Several distinct deposits make up the Meliadine project: Tiriganiaq, Wesmeg/Normeg, F-Zone, Wolf, and Pump zones are located south of Meliadine Lake in proximity to a west-northwest trending regional structure called the Pyke Fault.

Gold mineralization mainly occurs in multiple shear zones and laminated vein-quartz or quartz-carbonate veins developed within complexly deformed Archean turbidites and within sulphidized iron formation of the Tiriganiaq Formation. Stratigraphic units are overturned, dipping steeply to the north and striking west-northwest. Sulphide replacement-type mineralization (pyrite-arsenopyrite) with visible gold grains forms the richest Tiriganiaq deposit in both strongly and weakly magnetic iron formations. Hanging wall rocks are marked by late gabbroic intrusions within greywackes of the Sam Formation. Metavolcanic rocks of the Wesmeg Formation in the footwall can also host stockwork-type gold mineralization.

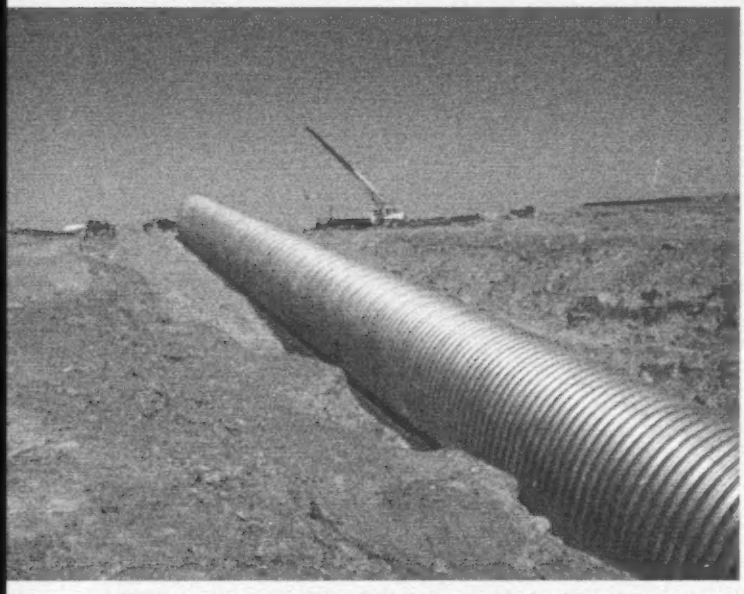
The successful drilling program of 2012 added more than one million ounces of gold to the revised reserve and resource estimates published in February 2013. Resource conversion drilling upgraded 500,000 indicated ounces from the inferred category; and added close to 500,000 new ounces to inferred resources. Reserves in all deposits within the Meliadine property total 13.3 million tonnes of proven and probable reserves grading at 7.0 g/t Au for a total of 3.0 million ounces of gold, an indicated resource of 2.2 million ounces (17.2 million tonnes at 3.9 g/t Au), and an inferred resource of 2.9 million ounces (14.8 million tonnes at 6.2 g/t Au).

Approximately $80 million in total expenditures was planned in 2013 for Meliadine; this total was estimated after a $10 million cost-saving measure announced by AEM in July. Three quarters of this budget was allocated for road construction, ramp development, camp operations and other project support costs. The remaining exploration budget of $20 million was devoted to an extensive drilling program which completed 79,959 m by August. The program consisted of 26,887 m of systematic resource conversion drilling from a network of 152 holes, 47,687 m of exploration drilling from 156 holes at Tiriganiaq, Wesmeg/Normeg, F zone, Pump and Discovery, and 29 holes at other exploration targets which provided 5,385 m of core.

The Tiriganiaq deposit is currently defined as three kilometres in length and considered to be open to the west. The Wesmeg and Normeg deposits appear to be connected to each other for a strike length of five kilometres, and remain open to the east, west and at depth. New drilling revealed that the Wesmeg portion has similar high-grade ore shoots plunging to the east that characterize the Normeg and Tiriganiaq deposits. Favorable results from deep drilling at the Pump, F Zone and Discovery deposits have added expansion potential at depth.

During the summer of 2013, AEM completed the 23-km all-weather access road connecting the community of Rankin Inlet to the property. This required the construction of three bridges, including one across the Meliadine River. The road will significantly reduce supply transportation costs for exploration and development activities at the established camp that accommodates up to 200 people. A permanent cover was installed and completed in Q3 over the portal entrance to the underground ramp. Plans in Q4 include re-opening the underground workings and constructing a 150 to 200 m extension onto the existing decline.

Meliadine is currently in the permitting phase for the development of a mine. Activities in 2014 will focus on further exploration drilling on the property and extension of the underground exploration ramp from which deep exploration and conversion drilling of the Tiriganiaq and Wesmeg/Normeg zones will occur. Although proposed expenditures for 2014 were reduced to $45 million from $80 million, AEM announced intentions for continued efforts to advance the project over the next few years. This work could lead to the initial start up of a mine in 2018, pending the outcome of the environmental review and regulatory processes. If Meliadine goes into production, it may surpass Meadowbank Mine as AEM's largest gold producer.



Work continues on the portal at the Meliadine project – *Courtesy of AANDC*

| 523 | PISTOL BAY |
|---|---|
| **Operator/Owner** | Northquest Ltd. |
| **Commodity** | Gold |
| **NTS** | 55K/05 – 55K/07, 55K/08, 55K/10, 55K/12 |
| **Land Tenure** | Crown, Surface IOL |
| **Location** | 35 km northwest of Whale Cove |

Northquest Ltd. more than doubled its mineral tenure in 2013 over the Pistol Bay property, which now covers 90 km of a two kilometre-wide corridor of the Rankin-Ennadai greenstone belt. The Pistol Bay project consists of 104 mineral claims totalling 86,150 ha owned by Northquest. In the spring of 2013, the company completed construction

Inukshuk near a drill rig, Pistol Bay project – *Courtesy of AANDC*

of an all-season camp to support ongoing gold exploration work, now in its third consecutive year. The 2013 exploration program consisted of $5 million in planned expenditures, including ground geophysics, geological field work, and diamond drilling.

Two previously-flown airborne geophysical surveys were used to guide follow-up ground surveys, done in 2013, for the purpose of determining the location of future diamond drilling. A 30.6 line-km ground EM survey was completed at the Bazooka target and a 21.7 and 16.3 line-km induced polarization/resistivity grid survey, were executed for the Sako and Vickers targets, respectively.

Systematic mapping and prospecting was carried out across the length of the project area to follow-up on gold-bearing samples and to identify new occurrences. Nine target areas, Barrett, Colt, CZ, Defender, Kimber, Purdey, Sako Grid, Tikka, and Webley, returned assay results from grab samples with anomalous gold values as high as 87.2 g/t. The average assay value from the 54 samples reported from all targets is 5.34 g/t Au. The best five results obtained were from Sako Grid (87.2, 38.1, and 11.9 g/t Au), Webley (55.7 g/t Au) and Barrett (6.5 g/t Au). The gold-bearing samples are mineralized quartz-breccias or silicified felsic porphyries which host or intrude sulphidized iron formation. Highlights from the 2013 exploration program include several new gold occurrences discovered along the 90 km length of the property.

Ten holes of an infill drill program completed in 2013, for a total of 2,016 m, were all drilled at Vickers. The aim of this drilling was to test the mineralization over a strike length of 200 m and to provide additional information to depths of 300 m. One intersection through intense alteration and mineralization graded 3.46 g/t Au over 158.4 m (PB-13-03) including a high-grade interval of 11.33 g/t Au over 18 m. This drill core contains visible gold grains. Drill hole PB-13-06 reported the best gold grades of 3.79 g/t over 138.4 m. Gold mineralization is found within a dioritic gabbro intrusion in the hanging wall and is associated with silica breccias and pervasive chloritic alteration in the footwall. Results suggest that Vickers is open at depth and along strike to the east with a minimum strike length of 200 m. Since 2011, the company has completed a total of 9,110 m of diamond drilling from 48 holes and tested the Bazooka, Sako and Vickers targets.

| 524 | WINDY GOLD |
|---|---|
| **Operator/Owner** | Bitterroot Resources Ltd. |
| **Commodity** | Gold |
| **NTS** | 65C/07 – 65C/10 |
| **Land Tenure** | Crown |
| **Location** | 340 km west of Arviat |

Bitterroot Resources Ltd.'s Windy Gold project consists of mineral tenure covering 39,797 ha. Claims were staked in 2011 based on mapping by the Geological Survey of Canada that identified gold mineralization in a structurally complex area in the Proterozoic-age Kiyuk and Hurwitz groups.

The Windy Gold project is adjacent to Prosperity Goldfields Corp.'s Kiyuk project, and the property borders Kiyuk's northern and western boundaries. Bitterroot conducted a 5,722 line-km airborne geophysical program, including magnetic, EM, and radiometric surveys on the Windy Gold claims in 2012, with the goal of better defining structural features prospective for gold.

Bitterroot identified a surface exploration program of prospecting, mapping, and geochemical sampling for 2013, but the program did not take place. No further work on or results from the property have been reported to date.

Ptarmigan on boardwalk, Kiggavik camp – *Courtesy of AANDC*

## URANIUM

| 670 671 | ABERDEEN[1], TURQAVIK[2] |
|---|---|
| **Operator/Owner** | Cameco Corporation |
| **Commodity** | Uranium |
| **NTS** | 66B/01 – 66B/03, 66B/06 – 66B/10[1]; 66A/05, 66A12, 66B/08, 66B/09, 66B/13 – 66B/16, 66G/03[2] |
| **Land Tenure** | Crown, Surface IOL |
| **Location** | 115 km west of Baker Lake[1], 105 km northwest of Baker Lake[2] |

The 122,713 ha Aberdeen and 112,623 ha Turqavik properties located in the Thelon Basin are owned by Cameco Corp. In 2012, the company relocated and constructed a new exploration camp and fuel tank farm on the south shore of Aberdeen Lake to support long term activities on the advancing projects. Several prospective targets in this part of the basin have been outlined with ground EM and gravity surveys since 2006 and many have been subsequently tested by diamond drilling.

Previously unreported exploration activities carried out in 2012 included 33 diamond drill holes which totaled 9,564 m at Tatiggaq, Qavvik, Ayra, Sandbould, Judge Sissons and Mammoth uranium targets. Veins and fracture-hosted ore zones contain disseminated to massive pitchblende along distinct oxidation-reduction boundaries over wide intervals at depths between 80 and 180 m. Noteworthy results from Tatiggaq returned grades of 0.43% $U_3O_8$ over a length of 54.2 m (TUR-052B); 0.93% $U_3O_8$ over 9.0 m (TUR-056); and 1.17% $U_3O_8$ over 6.1 m. Uranium mineralization at Tatiggaq yielded some of the highest grades in the area of up to 24% $U_3O_8$ in narrow 10 to 30 cm intercepts from drill core.

The company reduced greenfield exploration for 2013 and the focus of work concentrated on surveying 66 Turqavik claims for conversion to mineral leases. Field-based geological research projects were carried out, aimed at a structural investigation and geochemistry study of the Qavvik-Tatiggaq Trend, and other studies on the local Quaternary geology.

| 672 | ANGILAK |
|---|---|
| **Operator/Partner** | Kivalliq Energy Corporation, Nunavut Tunngavik Incorporated |
| **Commodity** | Uranium |
| **NTS** | 65J/06, 65J/07, 65J/09 – 65J/11, 65J/15 |
| **Land Tenure** | Crown, Subsurface IOL |
| **Location** | 235 km southwest of Baker Lake |

The Angilak project comprises one IOL subsurface parcel (RI-30) surrounded by 139 Crown mineral claims, with a total combined area of 137,702 ha. Exploration on the project is focused along the Lac 50 Trend, recognized as a basement-hosted unconformity-associated vein-hydrothermal type uranium deposit. The property is situated at the northern margin of the Angikuni sub-basin of the Baker Lake Basin. Uranium mineralization occurs as fracture-controlled pitchblende with sulphides chiefly hosted in graphitic-chloritic tuffaceous metasediments of the Baker Lake Group.

In March 2013, Kivalliq Energy released an updated National Instrument 43-101 (NI 43-101)-compliant resource update for the Angilak Property comprising the Main, Western and Eastern Extension, J4, and Ray zones of the Lac 50 Trend deposit. Using a cut-off grade of 0.2% $U_3O_8$ and including results from diamond drilling in 2012, the company added 60 per cent to its previous resource estimate. The inferred uranium resource has been revised to 2.83 million tonnes grading 0.69% $U_3O_8$ for a total of 43.3 million pounds

Geologists examining core, Kiggavik – *Courtesy of AANDC*

of uranium. Using the same uranium cut-off grade, the combined deposit has the potential to be a polymetallic producer with inferred mineral resources of 1.88 million ounces of silver, 10.4 million pounds of molybdenum, and 15.6 million pounds of copper.

An exploration budget of $4.8 million was allocated to the Angilak project for 2013. Compared to previous years, the company completed a modest 14 hole drilling program with 2,101 m of diamond drilling, bringing the total drilled on the property since 2008 to 89,530 m. Exploratory drilling led to the discovery of a new prospective area, the J1 zone, located between the Eastern Extension and J4 zones. Seven holes intersected the J1 EM conductor, and four drill holes tested the ML conductor. Mineralization occurs in association with carbonate veins hosted in sheared and hematized sulphide-bearing graphitic tuffs within a thicker sequence of basalt and gabbro. Assay results from the most significant intersection at J1 yielded 1.06% $U_3O_8$ and 0.28% Cu over a true width of 0.3 m at a vertical depth of about 60 m (13-J1-002); and another intersection assayed 0.56% $U_3O_8$, 15.5 g/t Ag, and 0.28% Mo over a true width of 0.6 m at a vertical depth of 77 m (13-J1-003). ML is located 650 m northeast of J4. One intersection at a depth of about 60 m yielded 1.42% $U_3O_8$, 139.0 g/t Ag, 0.40% Mo and 0.64% Cu over 1.2 m (13-ML-001)

In addition to new drilling, 984 line-kilometres of geophysical surveying, geological mapping, prospecting, and environmental studies were completed on the property. Geochemical analyses of 1,538 soil samples returned anomalous uranium-in-soil values from 387 of those samples. Some of the anomalous samples were collected 600 m from previous drill holes with known mineralization near the Blaze, Spark, Pulse and ML zones. A large anomalous zone measuring 500 m wide by 2,600 m long at the Hot target area yielded 2,880 ppb U, the highest value returned to date for uranium-in-soil in the Lac 50 Trend. The resulting anomalous zones, combined with their spatial association to EM conductors, will help to prioritize future drill targets.

Independent metallurgical tests were carried out on the Lac 50 Trend deposits over the past year. Preliminary results indicate good uranium recovery using an optimized alkali leaching process that exceeded 95 per cent uranium in 24 hours and 97 per cent uranium in 72 hours. Uranium values of 71.9 per cent for the yellowcake test product was of high quality and met uranium ore concentration specifications. Further metallurgical testing is required but these initial results indicate that Lac 50 deposits have favorable ore processing characteristics.

In October 2013, the company further expanded its interest in the Kivalliq region by entering into an agreement with Pacific Ridge Exploration Ltd. to acquire 100 per cent ownership of the mineral rights (excluding diamonds) on the Baker Basin Uranium property. This agreement includes results from proprietary exploration work, with a value of $7.1 million, previously completed on the claims. The property lies 60 km south of the community of Baker Lake and consists of 95 claims (93,993 ha). Multiple structurally controlled targets were discovered from exploration drilling around Bisset Lake by Pacific Ridge in 2006 and 2007 within Proterozoic sandstones of the Kazan Formation in the eastern part of the basin.

| 673 | KIGGAVIK |
|---|---|
| Operator/ Partners | AREVA Resources Canada Inc., DAEWOO International Corporation, JCU Exploration (Canada) Co. Ltd. |
| Commodity | Uranium |
| NTS | 66A/05, 66A/06, 66A/11, 66A/12 |
| Land Tenure | Crown, Surface IOL, Subsurface IOL |
| Location | 80 km west of Baker Lake |

Helicopter moving a drill rig shelter, Cameco's Aberdeen project – *Courtesy of AANDC*

The Kiggavik project west of Baker Lake consists of 37 Kiggavik and Sissons Crown and IOL Mining Leases on 32,203 ha, and 18 mineral claims (St. Tropez) covering 16,682 ha. Exploration for uranium began in the area in the 1970's, but activity and interest ceased during the 1980-90's. In 2007, AREVA Resources Canada Inc. renewed its exploration in the area and the project is presently held as a joint venture with AREVA as the operator with JCU Exploration (Canada) Co. Ltd. and DAEWOO International Corporation as partners. The Kiggavik property consists of five mineralized deposits, Main, Centre, East, Andrew Lake, and End Grid; and other prospects, Bong, Sleek, Jane, and Granite. The most recent uranium resource estimate for Kiggavik is a 133 million pound deposit with an average ore grade of 0.54% $U_3O_8$.

The Kiggavik deposit lies two kilometres south of the Thelon fault zone, a major vertical fault structure between basement metasedimentary rocks and the Thelon sandstone. The Andrew Lake and End Grid deposits lie along the Judge Sissons fault, a structure parallel to, and eight to ten kilometers south of the Thelon fault. Both structures form an east-west corridor along which fluids are thought to have concentrated the mineralization. Altered metasediments are the main host rocks for the uranium, however lesser amounts of mineralization occur in altered granite and intrusive rocks. Generally, mineralization occurs as pitchblende and minor coffinite in extensive clay alteration zones comprised of illite and sericite.

In 2013, the camp operated from June to September and received fuel and supplies at the site earlier in the year by winter road. The exploration program was supported by three drill rigs and diamond drilling was carried out to further outline the deposit resources, extend areas of known mineralization, and test geophysical targets. A total of 10,593 m of drilling in 39 holes was completed, along with 463 line-km of ground geophysics on ten grid areas. Environmental baseline studies and wildlife monitoring are on-going in the project area. Project expenditures or results for 2013 have not been released by the company. In 2012, the exploration and environmental field program cost approximately $8.7 million and a total of 11,858 m of diamond drilling was completed.

During the past year, the company received the technical review from NIRB of its DEIS and responded to technical review comments. If the proposed $2.1 billion project is approved, construction could begin in 2017 and is expected to take three to four years to complete. Production could start in 2020 and would require a workforce of up to 600 persons during the estimated 14-year life of the project. The mine site design consists of main operations at the current Kiggavik site with three open pits developed in succession, one ore processing mill, and an accommodation complex. Open pit and underground mining operations would be constructed at the Sissons site, approximately 20 km southwest of the Kiggavik site.

AREVA held a series of community open house meetings to explain the project to more than 250 residents at Baker Lake, Repulse Bay, Chesterfield Inlet, Whale Cove, Rankin Inlet, and Arviat. AREVA is preparing a Final Environmental Impact Statement, expected by September 2014.

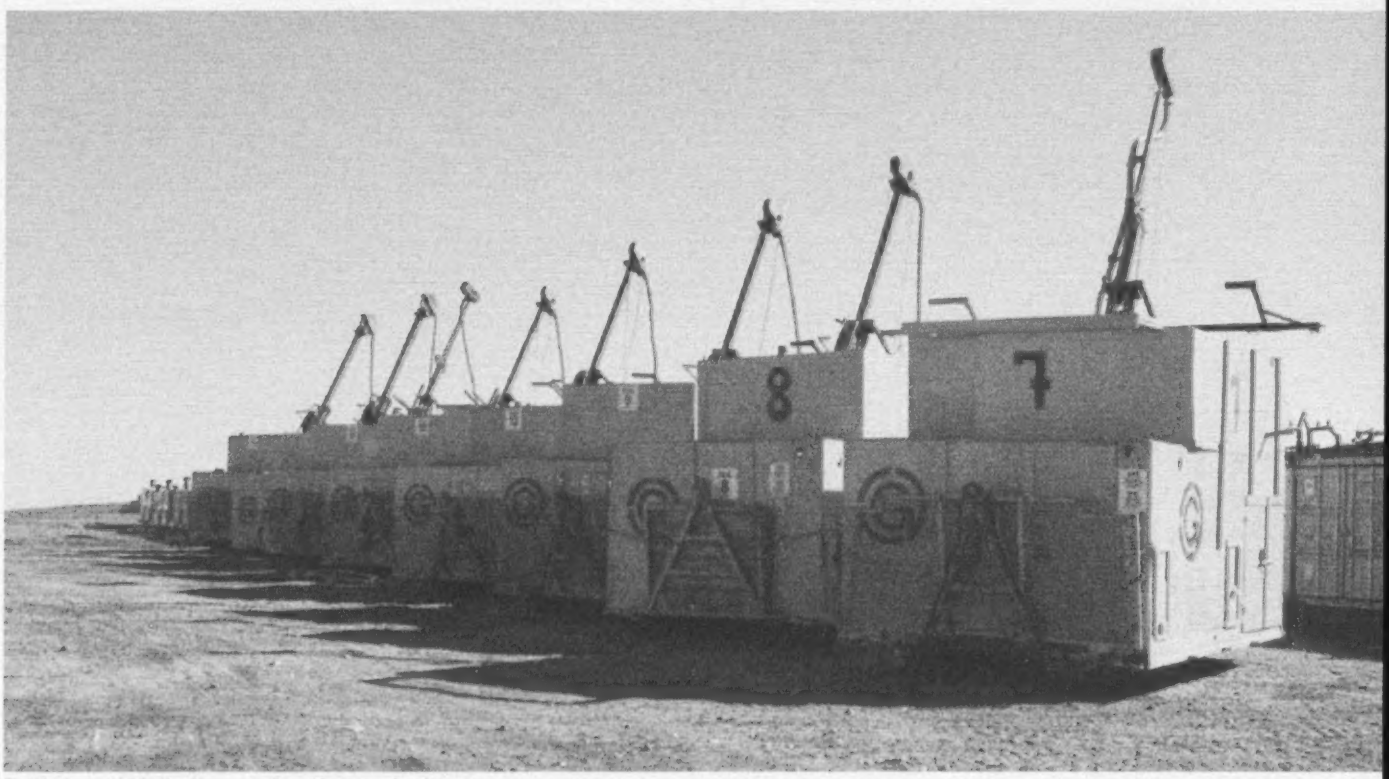
Aura Silver Resources Inc. controls the **Greyhound Lake** property near the all-weather access road between Meadowbank gold mine and Baker Lake. Four base and precious metal prospects were discovered by Aura Silver from field mapping and geophysics. In 2012, the company reported results of soil-gas hydrocarbon geochemistry that confirmed precious metal mineralization. No further results or work has been reported from the property.

Starfield Resources Inc. acquired the nickel-copper-cobalt-platinum-palladium VMS occurrence at **Ferguson Lake** in 1999. Three drill holes totaling 1,866 m were completed in 2011 and results from two of these holes at West and 119 zones had elevated values of nickel, copper, platinum and palladium. The company provided an updated preliminary economic assessment of the property in 2012. In 2013, Starfield pursued restructuring efforts and completed a sale of assets related to Ferguson Lake to Canadian North Resources and Development Corp. This sale came after Starfield filed papers to protect its assets under Part 3 of the *Bankruptcy and Insolvency Act*.

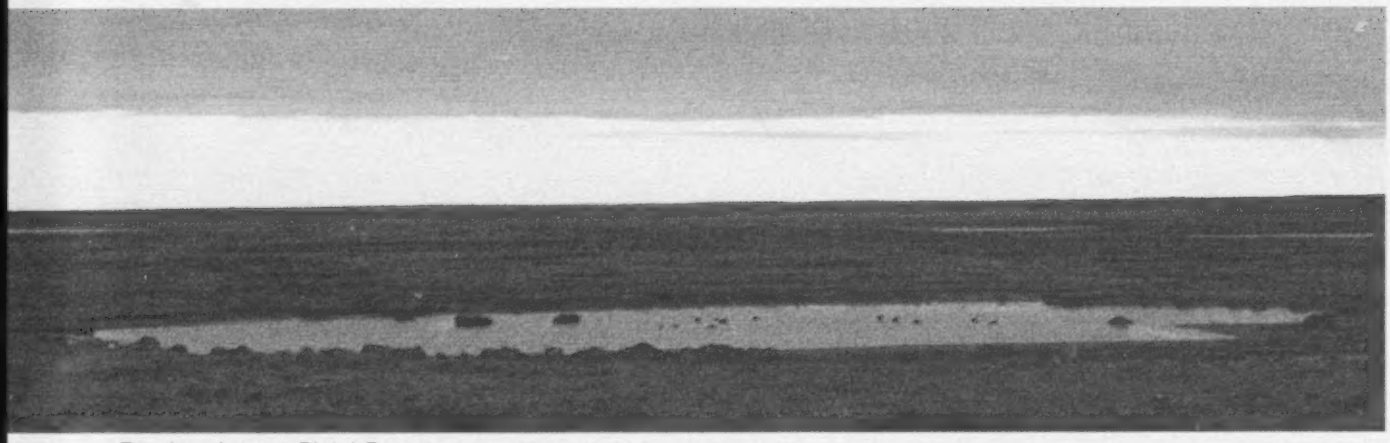
**Nanuq** and **Nanuq North** are two diamond projects investigated by Peregrine Diamonds Ltd., the latter in a joint venture agreement with Bluestone Resources Inc. Diamond-bearing kimberlites have been identified on both properties. Drilling on the property was carried out in 2011 on one target; kimberlite was not intersected. No work was done on either property in 2012 or 2013.

The **Qilalugaq** diamond project is situated north of Repulse Bay. In April 2013, North Arrow Minerals Inc. acquired the right to earn an 80 per cent interest in the property from Stornoway Diamond Corp. North Arrow Minerals needs to collect a mini-bulk sample (minimum 1,000 tonnes) from the 12.5 ha Q1-4 kimberlite complex to obtain an improved diamond valuation. The company is in the planning stages for collecting the bulk sample in 2014.

One gold prospect at **Mallery Lake** is located southwest of Baker Lake and owned by Adamera Minerals Corp. (formerly Uranium North Resources Corp.). Indications are that Mallery Lake is an epithermal gold-silver system. Gold assays were returned from all five holes drilled on this prospect, and values of up to 4.62 g/t Au over 3.0 m were reported from one hole. On Adamera Mineral's **Nowyak** property in the Yathkyed greenstone belt west of Arviat, gold is associated with sulphides in altered shear zones. Assay results from several grab samples returned gold values from 22 3 to 72.1 g/t. No follow up work was carried out on either




Drill rigs at Meliadine exploration project – *Courtesy of AANDC*



Evening sky over Pistol Bay camp – *Courtesy of AANDC*

the Mallery Lake or the Nowyak property in 2012 or 2013. In the same area and over the same period, the **Esker** and **Angikuni Lake** gold projects also held by Adamera did not report any activity.

The **RB** gold property is a group of four claims located 110 km northwest of Whale Cove. In 2011, Anconia Resources Corp. collected and analyzed 73 grab samples of which 26 returned gold values greater than 2.0 g/t and one sample yielded 196 g/t. The gold appears to be structurally controlled along low angle fault splays. No follow-up exploration plans have been announced.

The **Nueltin Lake** gold-uranium project lies in the southern Kivalliq region near the Manitoba border. The property consists of 34 mineral claims and one mineral lease covering a total area of 27,279 ha. URU Metals Ltd. announced in 2012 that it signed an option agreement with Cameco Corp., for a 51 per cent earn-in stake in the project after spending $2.5 million on exploration within three years. There has been no work reported for 2013 under this agreement.

In 2011, Adamera Resources completed a series of 16 reverse circulation drill holes on the **Amer Lake** property for a total of 2,285 m. The company subsequently published an inferred uranium resource for the property of 22.9 million tonnes at 0.041% $U_3O_8$ for a total of 20.9 million pounds of $U_3O_8$. Sub-horizontal horizons containing graphite were encountered during drilling; these horizons can be up to 25 m thick and contain 4.13% graphite. The company has not completed exploration work in Nunavut since 2011.

The **Thelon Basin** uranium project, formerly owned by Mega Uranium Ltd., was purchased in 2012 by NexGen Energy Ltd. The property is located 150 km north of Baker Lake in the northeastern part of the Thelon basin. The last work reported at the site was in 2008. Plans for follow-up activity in 2011 were announced but no work was reported.

Forum Uranium Corp. operates the **North Thelon** project on Crown and IOL mineral tenure, with parts of the property subject to an option agreement with AEM and an NTI Exploration Agreement. Drill holes completed in 2011 encountered intense alteration and uranium mineralization, including boron enrichment signatures previously reported at the Turqavik and Aberdeen projects by Cameco. The **Nutaaq** property showed promise for rare earth elements after Forum reported 7.6% total rare earth oxides from one altered syenite sample in 2011 and values up to 3.8 per cent total rare earth oxides in drill core obtained in 2009. The project is owned by Forum, subject to a 2% net smelter royalty to NTI. No further work has been reported.

The **Nunavut Rare Earth** project is owned by Cache Exploration Inc. and covers six prospecting permits in three different areas of the Kivalliq region. REE associated with uranium were the focus of surface sampling in 2011. Anomalous values were reported on two permits, with significant results of 556 ppm total REE and 1.95% $U_3O_8$. Cache concluded that detailed mapping would be required to follow-up on the occurrence. No field work was reported in 2012 or 2013.

Ridgemont Iron Ore Corp. owns the **Maguse River** iron project located 80 km north of Arviat. Archean iron formations were the subject of airborne magnetic and EM surveys, reconnaissance mapping and sampling, including 6,000 m of diamond drilling on the property in 2011. No results or further work have been reported.

| COMMODITY | PROJECT | OPERATOR |
|---|---|---|
| **BASE METALS** | | |
| 429 | Greyhound Lake | Aura Silver Resources Inc. |
| **DIAMONDS** | | |
| 487 | Nanuq | Peregrine Diamonds Ltd. |
| 488 | Nanuq North | Bluestone Resources Inc. |
| 489 | Qilalugaq | North Arrow Minerals Inc. |
| **GOLD** | | |
| 543 – 545 | Angikuni Lake (AN – 543, F13 – 544, Robin – 545) | Adamera Minerals Corp. |
| 546 | Esker | Adamera Minerals Corp. |
| 547 | Mallery Lake | Adamera Minerals Corp. |
| 548 | Nowyak | Adamera Minerals Corp. |
| 549 | RB | Anconia Resources Corp. |
| **IRON** | | |
| 579 | Maguse River | Ridgemont Iron Ore Corp. |
| **NICKEL-COPPER-PLATINUM GROUP ELEMENTS** | | |
| 639 | Ferguson Lake | Canadian North Resources and Development Corp. |
| **RARE EARTH ELEMENTS** | | |
| 666 – 668 | Nunavut Rare Earth | Cache Exploration Inc. |
| 669 | Nutaaq | Forum Uranium Corp. |
| **URANIUM** | | |
| 693 | Amer Lake | Adamere Minerals Corp. |
| 694 – 697 | North Thelon (Agnico-Eagle Option – 694, Inuit Owned Lands – 695, Kiggavik North – 696, Kiggavik South – 697) | Forum Uranium Corp. |
| 698 | Nueltin Lake | URU Metals Limited |
| 699 | Thelon Basin | NexGen Energy Ltd. |

## Qikiqtani Region

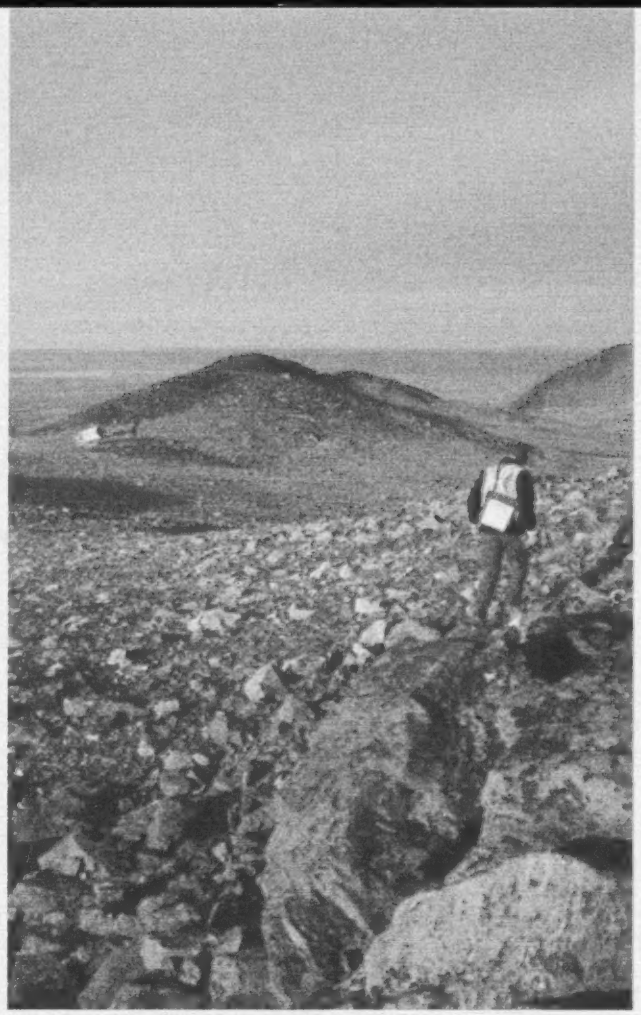
The Qikiqtani region is Nunavut's largest administrative district. It covers an area of 1,040,418 square kilometres, and its land mass is mainly islands of the Canadian Arctic archipelago, including Baffin, Devon, Cornwallis, Bathurst, Ellesmere, and many smaller islands. The northern part of the Melville Peninsula is also included within the Qikiqtani region, as are the Belcher Islands in southeastern Hudson Bay.

The city of Iqaluit, the territorial capital, is located on Baffin Island and is a major centre for exploration-related supplies and support services for the region. Other communities that benefit from exploration projects by providing services, supplies or employees include Igloolik, Hall Beach, Pangnirtung, Pond Inlet, and Arctic Bay. The hamlets of Clyde River, Cape Dorset, Grise Fiord, Kimmirut, Qikiqtarjuaq, Resolute, and Sanikiluaq are also located in the Qikiqtani region.

Geologically, the Qikiqtani region is underlain by rocks of the Archean and Proterozoic-aged Churchill Province, the Paleozoic-aged Arctic Platform and the Innuitian Belt. As a result of the wide variety of rocks, the region hosts a range of mineral deposits and occurrences, including iron, base metals, gold, platinum-group elements (PGE), diamonds, and sapphires. This year, much of the exploration in the region focused on iron, diamonds, and base metals. The region has two past-producing mines: Nanisivik on northern Baffin Island, which produced zinc, lead, and silver, and the Polaris lead-zinc mine on Little Cornwallis Island.

Baffinland Iron Mines Corp. was issued a project certificate for the Mary River iron project by the Nunavut Impact Review Board (NIRB) in December 2012. However, in January 2013, Baffinland indicated that it wished to proceed on the project with a phased development approach. This approach postpones the originally-planned production of 18 million tonnes of ore per year and construction of a railway and port facility at Steensby Inlet, in favour of an initial production of 3.5 million tonnes per year. In the initial phase, ore will be transported via the existing Milne Inlet tote road to vessels for seasonal shipping, with the later phases ramping up ore production to 21.5 million tonnes per year and constructing the railroad and port. This plan is estimated to decrease initial start-up capital costs from $4 billion to $740 million.

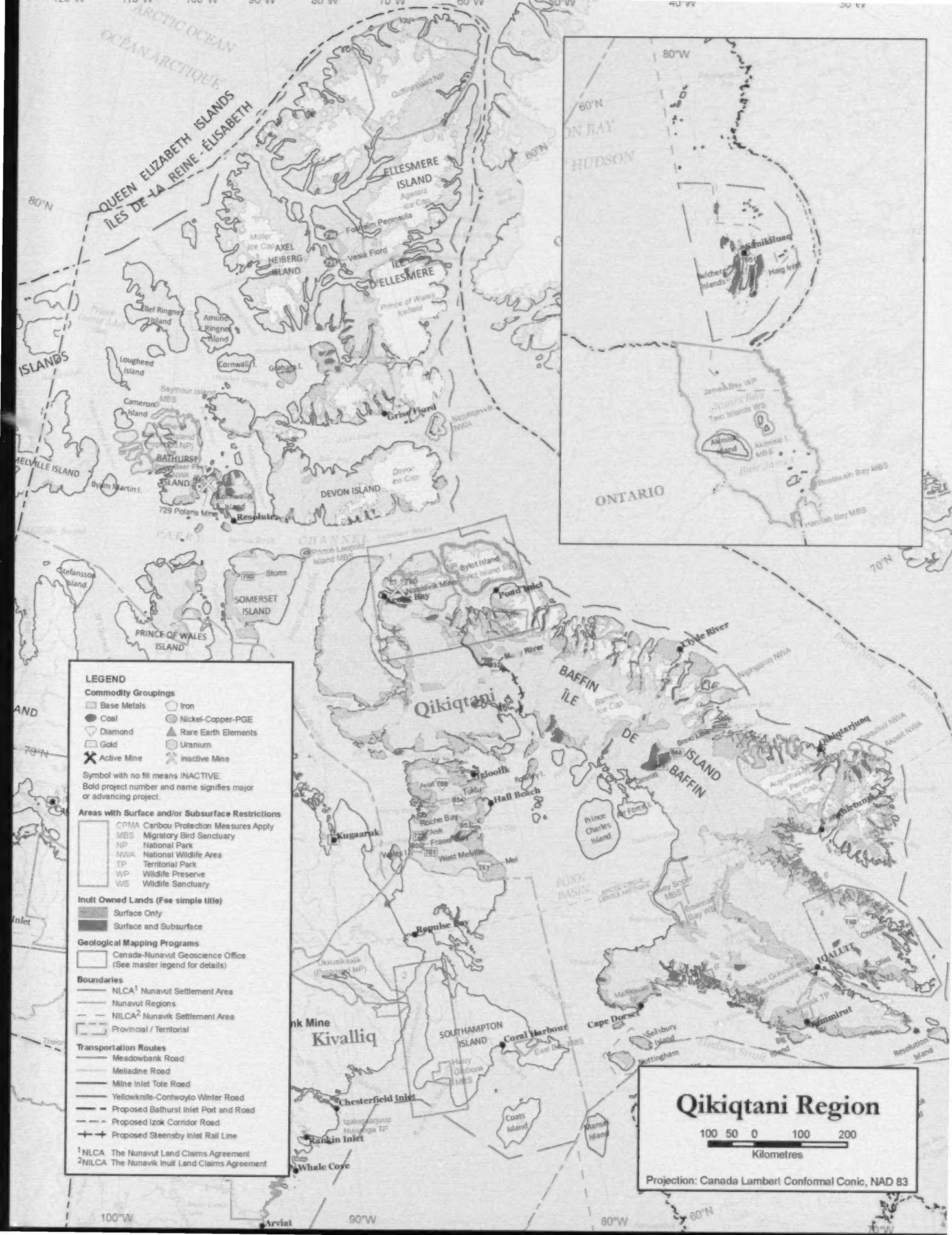
Baffinland's phased proposal triggered NIRB to begin an environmental impact assessment of the changes to the project. In the meantime, construction of mine-related infrastructure continues at the site, and the Nunavut Water Board issued Baffinland a Type A Water Licence in July 2013. In early September 2013, the Qikiqtani Inuit Association and Baffinland signed an Inuit Impact Benefit Agreement for the project.

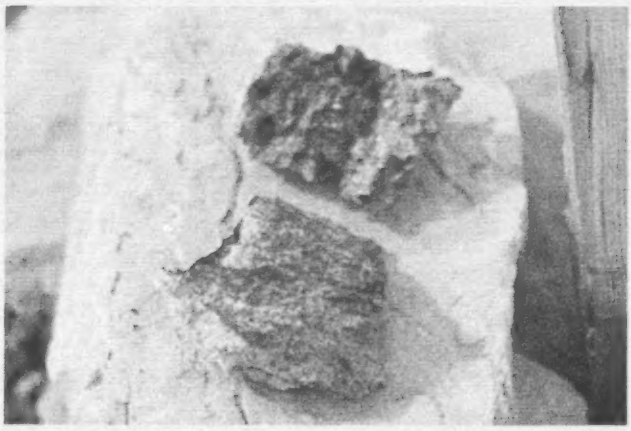


Geologist at Deposit 2, Mary River project – *Courtesy of AANDC*

On southern Baffin Island, Peregrine Diamonds Ltd. continued work on the Chidliak diamond project, including the collection of a 508-tonne bulk sample. Under an option agreement negotiated in 2012, De Beers Canada Inc. funded the 2013 exploration program on the property. In total, six new kimberlites were discovered. In October, De Beers announced that due to market conditions it would not be proceeding further with the joint venture. As a result, Peregrine will continue to advance the project as the 100 per cent owner.

Many projects operated by junior companies that had been active in the Qikiqtani region in 2012 were inactive in 2013. Mineral exploration and deposit appraisal expenditures in the Qikiqtani for 2013 are estimated at $13 million, with an additional $48 million spent on mine complex development at Mary River.


QUEEN ELIZABETH ISLANDS
ÎLES DE LA REINE-ÉLISABETH
ELLESMERE ISLAND
ÎLE D'ELLESMERE
AXEL HEIBERG ISLAND
Fosheim Peninsula
Vesta Fiord
Prince of Wales Icefield
Ellef Ringnes Island
Amund Ringnes Island
Cornwall I.
Graham I.
Lougheed Island
Cameron Island
Grise Fiord
Nirjutiqavvik NWA
BATHURST ISLAND
Byam Martin I.
Cornwallis Island
729 Polaris Mine
Resolute
DEVON ISLAND
Devon Ice Cap
MELVILLE ISLAND
Stefansson Island
Storm
SOMERSET ISLAND
PRINCE OF WALES ISLAND
Prince Leopold Island MBS
Nanisivik Mine
Nanisivik Bay
Byot Island
Byot Island MBS
Pond Inlet
Clyde River
Tay
BAFFIN ÎLE DE BAFFIN ISLAND
Qikiqtani
Barnes Ice Cap
Inglefield Bay
Qikiqtarjuaq
Akpait NWA
Auyuittuq NP
Penny Ice Cap
Iqaluit
Iqaluktuuttiaq
Hall Beach
Roche Bay
Fraser
West Melville
Mel
Prince Charles Island
Air Force I.
Kugaaruk
Wales I.
Repulse Bay
Ukkusiksalik (Parks Canada) NP
Ukkusiksalik NP
Kivalliq
SOUTHAMPTON ISLAND
Coral Harbour
Harry Gibbons Migratory Bird Sanctuary MBS
Chesterfield Inlet
Iqaluqtuuarjuup Nunanga TP
Rankin Inlet
Whale Cove
Arviat
Coats Island
Mansel Island
Cape Dorset
Salisbury Island
Nottingham
Kimmirut
Resolution Island
IQALUIT
Cumberland Sound
Meliadine Road
Milne Inlet Tote Road
Yellowknife-Contwoyto Winter Road
Proposed Bathurst Inlet Port and Road
Proposed Izok Corridor Road
Proposed Steensby Inlet Rail Line
Mary River
Nunavut Settlement Area
Nunavut Regions
Provincial / Territorial
Canada-Nunavut Geoscience Office
Surface Only
Surface and Subsurface
Base Metals
Coal
Diamond
Gold
Active Mine
Iron
Nickel-Copper-PGE
Rare Earth Elements
Uranium
Inactive Mine
Symbol with no fill means INACTIVE.
Bold project number and name signifies major or advancing project.
CPMA Caribou Protection Measures Apply
MBS Migratory Bird Sanctuary
NP National Park
NWA National Wildlife Area
TP Territorial Park
WP Wildlife Preserve
WS Wildlife Sanctuary
1NLCA The Nunavut Land Claims Agreement
2NILCA The Nunavik Inuit Land Claims Agreement
Qikiqtani Region
100 50 0 100 200
Kilometres
Projection: Canada Lambert Conformal Conic, NAD 83
ONTARIO
Akimiski Island
Akimiski I. MBS
Hannah Bay MBS
Boatswain Bay MBS
James Bay WP
Twin Islands WS
Nikkiluaq
Belcher Islands
Haig Inlet
80°W
60°N
70°N
80°N
100°W
90°W
60°W



Grab sample with high concentrations of copper minerals, Storm project – *Courtesy of Aston Bay Holdings Ltd.*

## Base Metals

| 700 | STORM |
|---|---|
| Operator/Partner | Aston Bay Holdings, Commander Resources Ltd. |
| Commodities | Copper, Zinc, Silver |
| NTS | 58C/10, 58C/11, 58C/13, 58C/14 |
| Land Tenure | Crown, Surface IOL |
| Location | 120 km south of Resolute |

The Storm copper-zinc-silver project, located on the northwest coast of Somerset Island, has been operated by Aston Bay Holdings since the company optioned the property from Commander Resources Ltd. in November 2011. The property currently consists of 64,301 hectares (ha) of mineral claims. The first discovery of mineralization was made by Teck Cominco in the 1990s. The Storm project includes two prospects, Storm Copper and Seal Zinc, and both are near tidewater.

Mineralization on the Seal Zinc prospect is primarily in the form of strata-bound massive sphalerite hosted in carbonate rocks. At Storm Copper, mineralization occurs as malachite, azurite, chalcocite, and bornite hosted in brecciated carbonates. The malachite and azurite are commonly found in mineralized boulders brought to the surface by frost boils.

In January 2013, the company announced that it had acquired a database containing unreleased technical data from Teck Resources Ltd.; this data was used to plan the 2013 work. The database includes data from 15,000 metres of drill core, more than 7,400 soil and sediment samples, and geophysical data, including results from a 3,970 line-kilometre electromagnetic (EM) survey.

Exploration at Storm in 2013 consisted of soil sampling, resampling of historical drill core and modeling of the results, and identification of targets for future sampling and drilling. Highlights from the core resampling include 1.79% Cu over 49 metres from surface in the 2200N Zone, and 110 m grading 2.45% Cu from surface and 56 m grading 3.07% Cu from 12.2 m in the 2750N Zone. On the Seal Zinc prospect, the company collected a 200 kg mini-bulk sample for metallurgical analysis. In November 2013, the company announced results from analyses of historic drill core from Seal Zinc, including significant results from hole AB95-02 of 10.58% Zn over 18.8 metres, and from AB95-03 of 6.62% Zn over 22.1 metres.

Under the terms of the joint venture with Commander Resources, to earn a 50.1% interest in the project, Aston Bay must conduct $6 million worth of exploration work on the properties by December 2015, including $1 million per year in 2012 and 2013, and $2 million per year in 2014 and 2015.

Further work on the project will include integration and analysis of historical datasets with data collected in the 2013 season. The preparation of a National Instrument (NI) 43-101 resource estimate and further drilling is planned for the Storm prospect although timelines have not been set.

| 701 | WEST MELVILLE |
|---|---|
| Operator/Owner | Vale Canada Limited |
| Commodities | Copper, Nickel |
| NTS | 47B/01, 47B/02, 47B/07 |
| Land Tenure | Crown, Surface IOL, Subsurface IOL |
| Location | 180 km southwest of Hall Beach |

Vale Canada Limited acquired mineral tenure in 2011 to explore for nickel, copper and PGE. The project, at Adamson River on the Melville Peninsula, currently consists of 28 mineral claims, which were acquired based on a nickel discovery reported by the Geological Survey of Canada as part of a Geo-mapping for Energy and Minerals project which ran from 2009 to 2011 on the Melville Peninsula. The company also holds a Nunavut Tunngavik Incorporated Exploration Agreement for subsurface Inuit Owned Land (IOL) parcel HB-09.

The ultramafic rocks that host the nickel mineralization occur as narrow, northeast-trending units within the Archean-age Prince Albert greenstone belt. Assays of mineralized grab samples from the property yielded results from 0.7 to 0.9% Ni in disseminated sulfides, and up to 8.0% Ni in samples with massive sulphide mineralization.

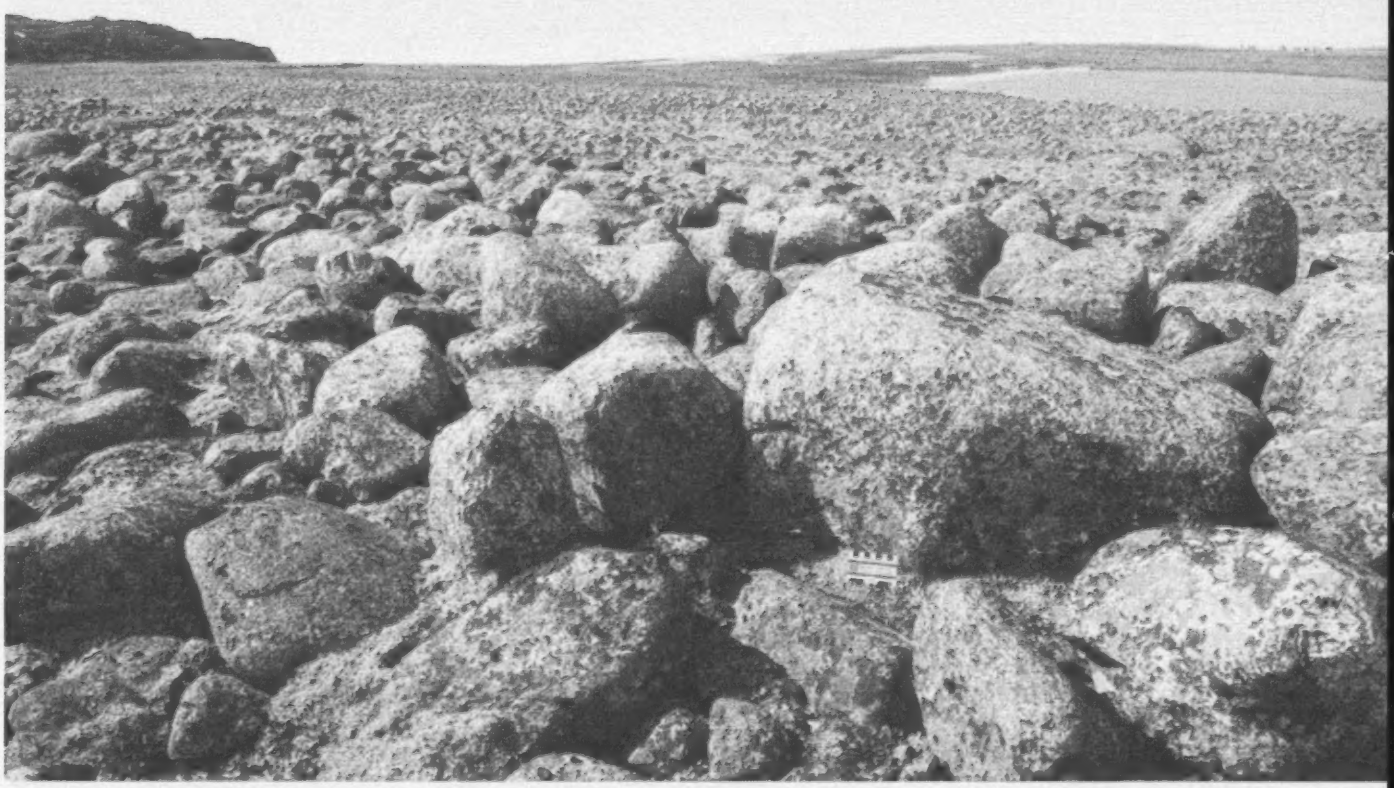
In 2011, the company began a five-year exploration program on the West Melville property, including prospecting and sampling, ground and airborne geophysics and exploratory drilling. Work on the property in 2012 included reconnaissance mapping and sampling, prospecting, and geophysical surveys.

From June to August of 2013, Vale Canada carried out a field program. Activities included drilling and ground geophysical surveys. Five drill holes were completed on two ultramafic targets for a total of 1,308 m of core. Down-hole EM surveys were done on four of the drill holes. A 21 line-kilometre EM ground geophysical survey was also conducted. No results from the 2013 field program have been released to date.

## COAL

| 730 731 | NUNAVUT COAL (FOSHEIM PENINSULA[1], VESLE FIORD[2]) |
|---|---|
| Operator/Owner | Canada Coal Inc. |
| Commodity | Coal |
| NTS | 49G/08 – 49G/10, 49G/15, 49G/16, 49H/05, 49H/12, 49H/13, 340B/02, 340B/03[1]; 49E/13, 49F/16, 49G/01, 49H/03, 49H/04[2] |
| Land Tenure | Crown, Surface IOL[1]; Crown[2] |
| Location | 380 km north of Grise Fiord[1], 330 km north of Grise Fiord[2] |

Canada Coal Inc. holds 68 coal licenses in the high Arctic, 59 of which are currently active and nine of which are pending. The licences occupy a total area of 786,189 ha on Ellesmere and Axel Heiberg Islands. Historical coal



Boulder moraine, Mackar Inlet – *Courtesy of AANDC*

exploration in the high Arctic began in the early 1980s, and has been undertaken by a number of companies. Canada Coal's project consists of two prospects, Fosheim Peninsula and Vesle Fiord, with the majority of the company's work taking place on the Fosheim prospect.

The company conducted a work program in the summer of 2012, consisting of geological mapping, sampling of coal zones to determine their continuity, studies on the permafrost on the properties, and archaeological and palaeontological studies. In November 2012, Canada Coal released an updated NI 43-101 report that included results from that summer's field season, as well as analytical results of coal samples from the project.

Although the company had planned an exploration program in 2013, no work was done on the property. However, Canada Coal continues to plan for a future drilling program on the Fosheim Peninsula and Vesle Fiord prospects.

## ▽ DIAMONDS

| 760 | CHIDLIAK |
|---|---|
| Operator/Owner | Peregrine Diamonds Ltd. |
| Commodity | Diamonds |
| NTS | 25P/13, 25O/15, 25O/16, 26A/04, 26A/05, 26B/01 – 26B/03, 26B/06 – 26B/11, 26B/14 – 26B/16 |
| Land Tenure | Crown, Surface IOL |
| Location | 115 km northeast of Iqaluit |

Peregrine Diamonds Ltd.'s Chidliak diamond project is located northeast of Iqaluit, on the Hall Peninsula of Baffin Island. The project's land tenure covers 798,940 ha of Crown land and IOL (surface). Chidliak is the largest diamond exploration project in Nunavut, based on the project's total area and number of known kimberlites.

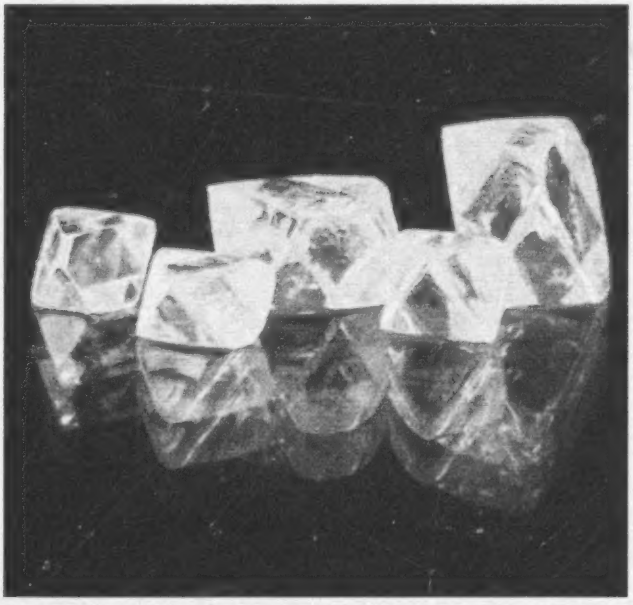
Exploration at Chidliak began in 2005 with the discovery of three occurrences of high concentrations of kimberlite indicator minerals (KIM). Glacial till sampling for KIMs over the next two years identified high numbers of G10 garnets, which are strong indicators for diamond-bearing kimberlites. In 2007, Peregrine acquired its first prospecting permits for the area. After kimberlites CH-1, CH-2, and CH-3 were discovered in 2008, Peregrine entered into a joint venture on the project with BHP Billiton.

Between 2009 and 2011, helicopter-borne and ground geophysical surveys, sampling, mapping, and prospecting on the Chidliak property led to the discovery of a total of 59 kimberlites. In December 2011, Peregrine exercised its option to buy back BHP Billiton's 51 per cent interest in Chidliak, and became the sole owner and operator of the project.

The field program at Chidliak in 2012 consisted of a ground geophysical survey in the spring. This work was followed by a summer program including mapping, prospecting, and drilling on kimberlites CH-1, CH-6, CH-7, and CH-44 to prepare for a bulk sampling program later in the 2013 season.

In September 2012, Peregrine announced a joint venture on the Chidliak project with De Beers Canada Inc. Under the terms of the joint venture agreement, De Beers had the exclusive option to earn a 50.1 per cent interest in the project. De Beers would be the project operator for the 2013 season, and would continue in that role if the joint venture was finalized by December 2013.

Peregrine completed a winter bulk sampling program on the CH-6 kimberlite between February and April 2013. A total of 508 wet tonnes of kimberlite material was collected through surface trenching. In November, Peregrine announced that processing of the bulk sample had been completed and the



Rough diamonds from the CH-6 bulk sample. The largest stone, at right, is 3.54 carats. – *Courtesy of Peregrine Diamonds*

Peregrine Diamonds' CH-6 bulk sample being hauled to Iqaluit – *Courtesy of Peregrine Diamonds*

resulting heavy mineral concentrate would be evaluated for its diamond content.

The $2-million 2013 summer field program, operated by De Beers, included geologic mapping and prospecting and ground geophysics, specifically gravity, magnetic, EM, and ground-penetrating radar surveys. The program ran from late June to mid-August, and resulted in the discovery of six new kimberlites, one of which was discovered by geologists with the Canada-Nunavut Geoscience Office working on the Hall Peninsula Integrated Geoscience Program. These discoveries bring the number of known kimberlites at Chidliak to 67. Kimberlite float which did not correspond to any known kimberlites on the property was also discovered at several locations. One of these localities, Area B, consists of kimberlite boulders and cobbles with abundant KIMs found over an area of 0.6 square kilometres, making Area B a high priority for future exploration.

In October 2013, De Beers notified Peregrine that due to existing economic conditions, De Beers would not exercise its right to enter into the joint venture agreement on the Chidliak property. As a result, Peregrine currently holds a 100 per cent interest in the project. However, De Beers remains committed to funding the processing of the bulk sample at the Saskatchewan Research Council Geoanalytical Laboratories, as had been previously agreed.

Initial results from the bulk sample were released in December 2013. The original 508 wet tonnes of sample reduced to 404.2 dry tonnes. A 222.1 tonne subsample returned a diamond grade of 2.70 carats per tonne, and produced 601 carats of commercial-size diamonds (larger than 0.85 mm in size). Forty-eight of the diamonds were more than 1 carat in size, with the largest diamond recovered weighing 3.54 carats. A third of the diamonds are white or colourless, while yellow, grey, and brown stones make up another third. The remaining third are off-white.

Final results from the processing, including independent valuations of recovered diamonds and the diamond results from the remaining 182.1 dry tonnes, are expected to be released in the first quarter of 2014. These results will help to determine the focus of the 2014 field season and will be used to establish a resource estimate for CH-6.

| 761 | MEL |
|---|---|
| Operator/Owner | North Arrow Minerals Inc. |
| Commodity | Diamonds |
| NTS | 460/08, 460/09 |
| Land Tenure | Crown, Surface IOL |
| Location | 140 km south of Hall Beach |

North Arrow Minerals Inc. acquired the Mel project in August 2013. The project consists of five prospecting permits covering approximately 73,865 ha, and is part of an option agreement with Anglo Celtic Exploration Ltd., along with the Luxx diamond project in the Kivalliq region. Previous exploration in the area was focused on base metals and nickel-copper-PGE occurrences, but North Arrow's current exploration focus is on diamonds.

The main exploration targets at Mel are two KIM trains whose sources are currently undefined. These KIM trains include eclogitic garnet and pyrope garnet, both of which can be indicative of diamond presence in a kimberlite. The company undertook an airborne magnetic survey in July and August of 2013, and will use the results to plan target areas for till sampling and mapping in the summer of 2014.

No results from the 2013 program have been released to date.

## Iron

| 859 | FRASER BAY |
|---|---|
| Operator/Partner | West Melville Metals Inc., Roche Bay plc |
| Commodity | Iron |
| NTS | 47B/02, 47B/07 |
| Land Tenure | Crown, Surface IOL |
| Location | 175 km east of Kugaaruk |

West Melville Metals Ltd.'s Fraser Bay project is located on the western coast of the Melville Peninsula. The project, whose tenure is held by Roche Bay plc, consists of a single mineral lease covering 1,306 ha of Crown land. West Melville

Melting ice on the shore of Steensby Inlet – *Courtesy of AANDC*

Frost-heaved blocks of banded iron formation on the Haig Inlet property, Sanikiluaq – *Courtesy of AANDC*

Metals and Roche Bay plc signed a joint venture agreement in 2011 making West Melville Metals the operator at Fraser Bay, and giving the company the option to earn up to a 70 per cent interest in the project.

Exploration on the property began in the late 1960s, when reconnaissance prospecting identified several iron ore bodies on the east and west coasts of the Melville Peninsula. The banded iron formation (BIF) found within the Fraser Bay project area occurs as discontinuous layers within metavolcanic and quartzite units of the Prince Albert Group, cross-cut by two east-west-trending faults.

The main focus of the project is a magnetite-rich BIF that extends more than 5.5 km along strike, and varies from 100 m to more than 350 m thick. The 2011 exploration program included a ground geophysical survey and limited channel sampling, which returned best results of 68.2% Fe over 1 m and 61.6% Fe over 13 m. The presence of high-grade iron ore has led the company to evaluate the project for its direct-ship potential, in addition to the production of iron ore concentrate.

In October 2012, the company announced results from the summer's $1.5-million field program that included highlights of 65.3% Fe over 22.0 m and 61.2% Fe over 44.1 m from two channel samples. The mineralization in both of these channel samples is coarse-grained massive specular hematite.

A drill program on the lease was under consideration for the 2013 season, but no work on or results from the project have been reported.

| 851 | HAIG INLET |
|---|---|
| **Operator/Owner** | Canadian Orebodies Inc. |
| **Commodity** | Iron |
| **NTS** | 34D/06, 34D/07, 34D/11, 44A/01, 44A/08 |
| **Land Tenure** | Crown, Subsurface IOL |
| **Location** | 20 km southeast of Sanikiluaq |

Canadian Orebodies Inc.'s Haig Inlet iron ore project is located on the Belcher Islands in southeastern Hudson Bay. The project includes 17,212 ha of IOL (subsurface) and 56,421 ha of Crown land. Iron exploration on the Belcher Islands dates back to the 1950s, when the Belcher Mining Corporation conducted programs targeting the relatively flat-lying Kipalu Formation, a series of Palaeoproterozoic iron-bearing rocks hosted in a sedimentary-volcanic sequence. At that time, Belcher Mining estimated an unclassified resource of more than 900 million tonnes of iron ore with an average grade of 27% iron.

There was no further activity at Haig Inlet until Canadian Orebodies began a drill program in 2011 on the project's Haig North and Haig South prospects. Significant results from holes drilled that season included assays of 36.0% Fe over 14 m and 35.9% Fe over 14 m. The iron mineralization occurs as hematite, magnetite, and a mixture of both minerals.

Canadian Orebodies released a NI 43-101-compliant estimate on Haig Inlet in early 2012. The Haig North deposit is estimated to have an indicated resource of 230 million tonnes grading 35.17% Fe and an inferred resource of 155 million tonnes grading 35.55% Fe. Haig South's estimated inferred resource is 134 million tonnes of ore at 35.37% Fe.

In November 2012, Canadian Orebodies announced that it was acquiring a 100 per cent interest in the Haig Inlet iron project, based on assay results from the 2012 drill program.

Geologists at a channel sample site, Mary River project – *Courtesy of AANDC*

Highlights from that drilling included 33.82% Fe over 19.9 m and 16.2 m of 35.9% Fe from two drill holes at Haig West, and 32.03% Fe over 16.3 m at Kihl Bay.

In January 2013, the company released final results from the 2012 drill program. A total of 6,470 m of drilling was completed across the Haig West, Haig South, Haig North Extension, and Kihl Bay prospects. Mapping on the southern margin of the Haig West target identified a previously unknown 4.5 km-long magnetite-mineralized outcrop.

No further work or results from the 2013 field season have been reported to date.

| 852 | MARY RIVER |
|---|---|
| Operator/Owner | Baffinland Iron Mines Corporation |
| Commodity | Iron |
| NTS | 37C/09, 37C/10, 37C/15, 37C/16, 37E/13, 37F/01, 37F/08 – 37F/10, 37F/15, 37F/16, 37G/01, 37G/02, 37G/05 – 37G/07, 37G/11, 37G/12, 37G/15, 47H/08 |
| Land Tenure | Crown, Surface IOL, Subsurface IOL |
| Location | 160 km south of Pond Inlet |

Baffinland Iron Mines Corporation's Mary River iron project is located south of Pond Inlet. The region has been explored sporadically for its iron potential since the first iron ore discovery in 1962. The project currently consists of five deposits of high-grade iron ore and several additional prospects; regional exploration is continuing in order to identify further resources.

Until December 2012, the Mary River project was 70 per cent owned by Baffinland's parent company ArcelorMittal SA, and 30 per cent owned by Nunavut Iron Ore Acquisition Inc. Due to poor economic conditions, in 2012, ArcelorMittal SA sold 20 per cent of its share in Baffinland to Nunavut Iron Ore, making the two parties equal partners in the project. Nunavut Iron Ore is a 100 per cent-owned subsidiary of Iron Ore Holdings LP and was formed as a new company registered for the sole purpose of the Mary River-related transactions.

Baffinland was issued a project certificate from the NIRB in December 2012. However, in January 2013, Baffinland indicated that the project would be scaled back from its initial scope, and the company would move to a phased approach to developing the project. The phased approach, the first part of which is termed the Early Revenue Phase by the company, includes reduced initial production targets of 3.5 million tonnes of iron ore per year, and delayed construction of the rail line to Steensby Inlet and the corresponding port facility. Under the phased approach, the tote road to Milne Inlet would be upgraded to accommodate increased trucking to move the ore to stockpiles at the inlet, where it would then be shipped out during the open water season. The construction of the rail line and port at Steensby Inlet is scheduled to be completed by 2019 to allow for shipping of up to 21.5 million tonnes of ore per year from both sites beginning in 2020.

The company asked that its original project certificate be amended to allow these changes for the Early Revenue Phase. However, the changes were considered by NIRB to be significant enough to require a second public review process to evaluate them. Baffinland submitted a revised project description to the board in June 2013; this description included additions to its final Environmental Impact Statement. Technical review meetings were held in November, with a final hearing scheduled for January 2014. A decision from NIRB on the Early Revenue Phase is expected in early 2014.

In early September 2013, the Qikiqtani Inuit Association and Baffinland signed an Inuit Impact Benefit Agreement for the Mary River project. The agreement, which covers items such as education and training, Inuit employment, community support, and a commercial production lease, was under negotiation during the environmental review and water licensing processes. A draft plain language guide to the Inuit Impact Benefit Agreement has been published by the Qikiqtani Inuit Association, and the formal agreement was released in December 2013.

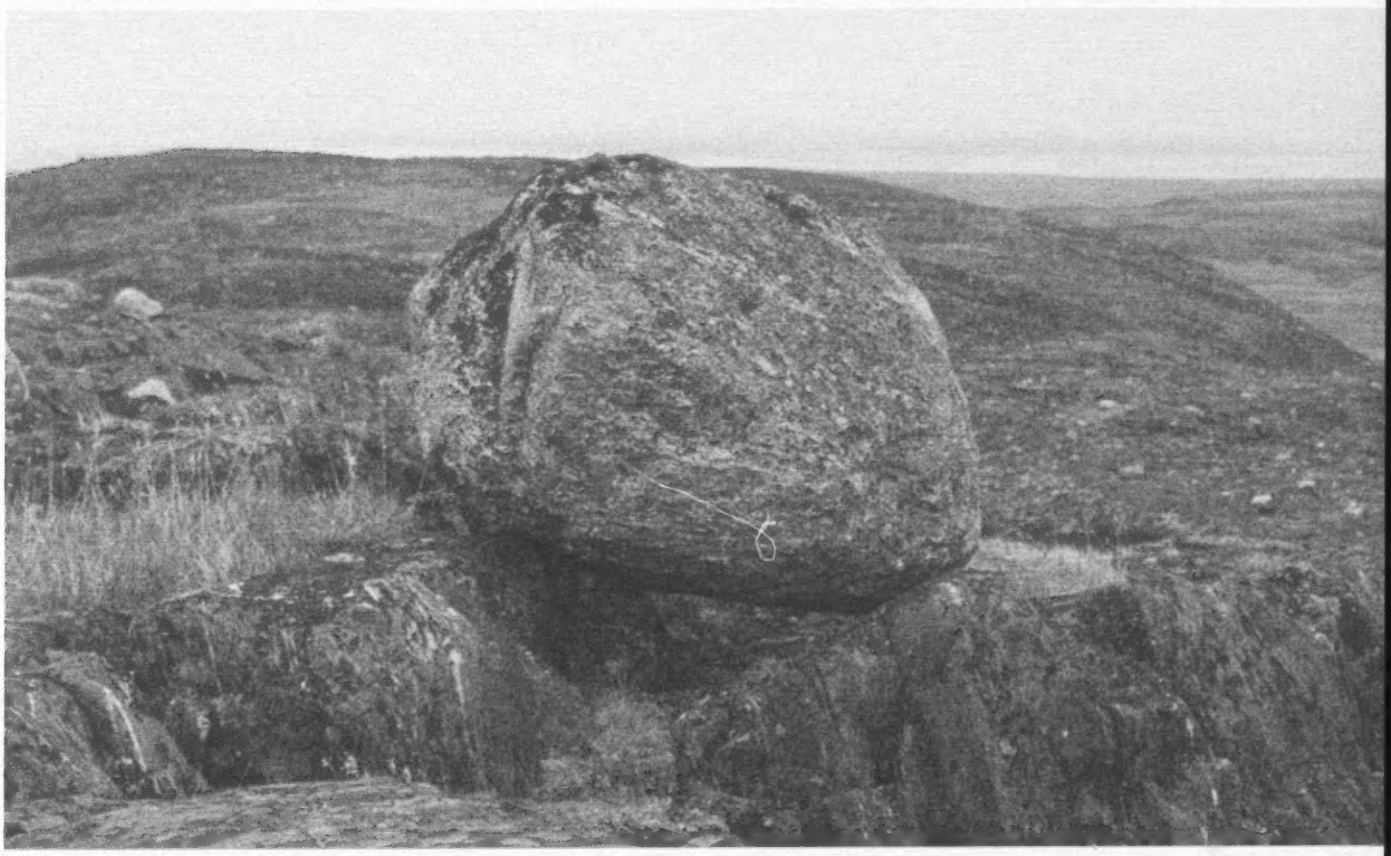
During the 2013 field season an extensive geology and geophysics exploration program was performed across the company's mineral claims and the IOL Exploration Agreement parcel located northeast, east, and southeast of the Steensby Inlet camp site. Due to the proximity of the Steensby Inlet site to the majority of claim blocks that comprised the focus of this field season, exploration work was based out of this camp rather than the main Mary River site.

The field program included property and regional scale reconnaissance prospecting, surface sampling, portable XRF traverses, property scale mapping, ground gravity and magnetic surveys, and a helicopter traverse program. Undergraduate and graduate thesis projects continued during 2013 and included focused geophysical modeling at Deposit No. 4, research on the origin of the "ore zone schist" at Deposits 1 through 5, and interpretive work on newly defined prospects in the Eqe Bay fold belt. The work at Eqe Bay included evaluation of the claims for base and precious metal potential.

A significant amount of cargo was brought in via sealift during the 2013 season, including nine dry cargo vessels and three fuel vessels. In total, 32,600 tonnes of cargo, 33 million tonnes of diesel fuel, and 2.1 million litres of Jet A fuel was transported. Construction on the mine site has begun and is expected to continue through 2014.

| 853 854 | ROCHE BAY[1], TUKTU[2] |
|---|---|
| Operator/Partner | Advanced Explorations Inc.[1,2], Roche Bay plc[1] |
| Commodity | Iron |
| NTS | 47A/03 – 47A/06, 47A/11[1]; 47A/13, 47A/14, 47D/03, 47D/04[2] |
| Land Tenure | Crown, Surface IOL, Subsurface IOL[1]; Crown[2] |
| Location | 70 km southwest of Hall Beach[1], 70 km west of Hall Beach[2] |

Advanced Explorations Inc.'s (AEI) Roche Bay and Tuktu properties are located on the east coast of the Melville Peninsula. The project consists of four mineral leases and 45 mineral claims at Roche Bay and 16 claims at Tuktu. The



Glacial erratic boulder, Mary River project – *Courtesy of AANDC*

Arctic fritillary butterfly, Tuktu site – *Courtesy of AANDC*

iron formations on both properties were discovered during regional exploration by the Geological Survey of Canada in 1968. The properties remained idle until 2007 when AEI entered into a joint venture agreement with Roche Bay plc.

The geology of the Roche Bay project is described as Algoma-type banded iron formation, characterized by alternating magnetite and silicate bands. The project consists of five mineralized zones, Zones A, B, C, D, and E. The zones range in length from less than 1 km to more than 4 km.

The Tuktu project is located 60 km north of the Roche Bay project. Tuktu 1, identified in 2009, is a 2,600 m long, 700 m wide banded iron formation. Tuktu 2 was discovered in 2011 and is comprised of a 1,600 m long magnetic anomaly from which grab samples returned high-grade iron content.

AEI has three agreements in place for selling ore from Roche Bay and Tuktu if the deposits come to production. Shandong Fulun Steel Co. has agreed to purchase up to 19 per cent of the total iron ore products from any AEI project other than Roche Bay. XinXing Ductile Iron Pipes Co. has the right to earn up to a 50 per cent interest in Tuktu 2 in exchange for funding exploration work at that deposit. XinXing Ductile Iron Pipes also funded the feasibility study on the Roche Bay C-Zone, in exchange for rights to up to 50 per cent of the off-take from that deposit if the project goes into production.

In March 2012, AEI filed an updated NI 43-101 report for Roche Bay's C-Zone deposit, with indicated resources estimated at 501 million tonnes averaging 26.35% Fe and inferred resources estimated at 66 million tonnes at 26.37% Fe. The A/B Zone's inferred resource is based on limited recent and historical drilling, and amounts to 92 million tonnes at 24.64% Fe.

Work done on the properties in 2012 consisted of geotechnical work to evaluate the potential for port facilities on the Roche Bay project. Additional sampling followed up on high-grade results from Tuktu 2, which returned a best result of 69.3% Fe. In August 2012, the company released its positive feasibility study on the Roche Bay C-Zone, based on production of 5.5 million tonnes per year of a 66% iron concentrate, over an estimated mine life of 15 years.

In August 2013, AEI announced results of a comprehensive review of the drilling programs, sample results, and other data from the Roche Bay and Tuktu projects. This review determined that there is significant potential for direct-ship ore at both locations and identified high-priority targets for future sampling and drilling work. No other results or work done were reported for 2013.

There are two past-producing mines in the Qikiqtani region, both of which ceased production in 2002. Teck Resources Ltd.'s decommissioned **Polaris** lead-zinc mine is located on Little Cornwallis Island, northwest of the community of Resolute. The decommissioned **Nanisivik** zinc-lead-silver mine, which had been operated by Canzinco Ltd., is located east of the community of Arctic Bay. Post-closure environmental monitoring continues at the two sites, and water licenses for both sites are in the renewal process.

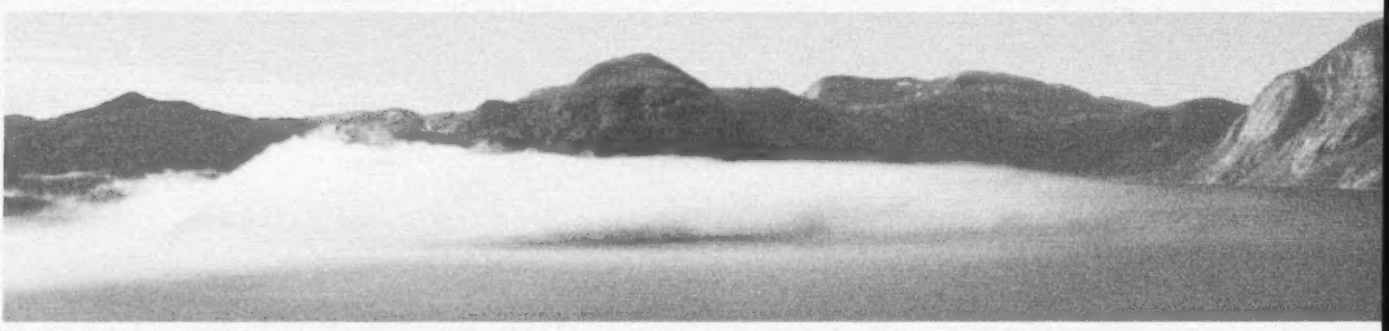
Commander Resources Ltd. last completed work on the **Baffin Island Gold** project, consisting of the Bravo and Qimmiq properties, with a geophysical survey in 2011. Commander's partner, AngloGold Ashanti Ltd, withdrew from the joint venture agreement on the project in 2012. Commander retains its 100 per cent interest in the project, and further work on the project is on hold while the company searches for joint venture partners.

The **Anik** copper-nickel project, on the Melville Peninsula, was acquired by Advanced Explorations Inc. in 2010. AEI completed a sampling program in 2011 and the program's results led to the planning of an airborne geophysics survey, mapping, prospecting, and sampling. This program was deferred to a future field season and no work has been reported by AEI from the project in 2012 or 2013.

Peregrine Diamonds Ltd.'s **Qilaq** diamond project is located east of Iqaluit, on the Hall Peninsula of Baffin Island. Peregrine completed two field seasons on the property in 2010 and 2011, which included geophysical surveying, geochemical sampling, drilling, mapping, and prospecting. Although three kimberlites and several metal anomalies have been identified on the property, no field work has been carried out since 2011.

The **Aviat** diamond project, a joint venture project 90 per cent owned by Stornoway Diamond Corp. and 10 per cent owned by Hunter Exploration Group, consists of 12 known kimberlites on the northern end of the Melville Peninsula. No exploration work has taken place on the project since 2008, although the company released new microdiamond results in March 2011.

| COMMODITY | PROJECT | OPERATOR |
|---|---|---|
| **BASE METALS** | | |
| 727 | Anik | Advanced Explorations Inc. |
| 728 | Nanisivik Mine | Canzinco Ltd. (Breakwater Resources Ltd.) |
| 729 | Polaris Mine | Teck Resources Limited |
| **DIAMONDS** | | |
| 788 | Aviat | Stornoway Diamond Corporation |
| 789 | Qilaq | Peregrine Diamonds Ltd. |
| **GOLD** | | |
| 848 – 849 | Baffin Island Gold (Bravo Lake – 848, Qimmiq – 849) | Commander Resources Ltd. |



Mist over Cumberland Sound – *Courtesy of CNGO*

## Guide to Acronyms

| | |
|---|---|
| **AANDC** | Aboriginal Affairs and Northern Development Canada |
| **BIF** | banded iron formation |
| **CNGO** | Canada-Nunavut Geoscience Office |
| **DEIS** | Draft Environmental Impact Statement |
| **EDT** | Department of Economic Development and Transportation, Government of Nunavut |
| **EM** | electromagnetic |
| **GN** | Government of Nunavut |
| **IOL** | Inuit Owned Land |
| **KIM** | kimberlite indicator minerals |
| **MPR** | Minerals and Petroleum Resources Division |
| **NI 43-101** | National Instrument 43-101 |
| **NIRB** | Nunavut Impact Review Board |
| **NTI** | Nunavut Tunngavik Incorporated |
| **NWT** | Northwest Territories |
| **PFS** | preliminary feasibility study |
| **PGE** | platinum-group-elements |
| **REE** | rare earth elements |
| **RIA** | Regional Inuit Association |
| **SEDAR** | system for electronic document analysis and retrieval |
| **VMS** | volcanogenic massive sulphide |

Full moon rising over Hall Peninsula field camp – *Courtesy of CNGO*

**base metal** – a general term applied to metals that corrode or oxidize easily, such as iron, lead, copper, or zinc.

**breccia** – a type of rock made up of angular rock or mineral fragments that have been broken apart by forces within the Earth and then cemented together. Breccias can be good hosts for mineral deposits because the spaces created after the rock is fractured provide space for mineralization to occupy.

**bulk sample** – the collection of a large amount of mineralized material from a deposit to determine its average metal or mineral content. Bulk samples are usually several hundred kilograms to several tonnes in size.

**deposit** – a natural concentration of a metal, gemstone or other mineral substance, which may be economically extracted but whose traits need a more detailed study to be classified as a resource. Also commonly referred to as a mineral deposit.

**drilling** – the operation of making holes with a drill to sample bedrock or other surface material such as glacial till or clay. Geologists examine the drill core after it is extracted in order to map rock types below the surface and to understand geological structures, with the goal of finding mineral deposits or oil and gas reserves.

**Environmental Impact Statement** – a document outlining the effects of a development project on the environment, prepared by the proponent of a project and presented to regulators, decision makers and the public.

**fee simple** – a form of private land ownership in which the owner has the right to use, control access to, and transfer the land at will. Inuit Owned lands are fee simple lands.

**geochemical survey** – the chemical analysis, done in a laboratory, of soil, rock, or water samples that have been taken from an area, to discover if metals, petroleum, or gemstones are present, by looking for abnormal concentrations of chemical elements in the samples. Also commonly referred to as geochemical exploration.

**geophysical survey** – the collection of information associated with bedrock using sensors employed from the air or the ground. These sensors record electric, gravity, magnetic, seismic, or thermal data. This type of study is used by mineral exploration companies to detect physical properties of rocks such as magnetism, gravity or conductivity.

**grab sample** – a rock sample, collected by hand, that may contain a mineral of economic interest; it is analysed to find out if valuable minerals or metals are contained in the rock.

**greenstone belt** – a linear zone or "belt" of metamorphosed volcanic rocks. This type of rock commonly hosts deposits of gold or other valuable metals. The characteristic green colour comes from several different green minerals that make up the volcanic rocks. These belts can be tens to hundreds of kilometres in length and are found in several places across Nunavut.

**kimberlite** – a type of igneous rock that sometimes contains diamonds. Kimberlites can be composed of intrusive and extrusive rock. Kimberlite indicator minerals (KIMs) are minerals found in glacial or other sediments that suggest the nearby presence of a kimberlite.

**mafic rock** – any igneous rock composed primarily of dark-coloured minerals, usually with a high iron and magnesium content; this term is also applied to those minerals as a group. Ultramafic rocks are rocks made up of greater than 90% mafic minerals, and some can be used as carving stone.

**platinum-group elements (PGEs)** – any one of several metals including iridium, osmium, palladium, platinum, rhenium, rhodium, and ruthenium. These metals are highly resistant to tarnishing and corrosion and are used in industrial applications, as well as in jewellery.

**reserve** – a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a mineral deposit that can be economically extracted at the time of publication of the estimate. Classifying a deposit as a reserve indicates that a company has strong confidence in the quantity and quality of ore in that deposit. Mineral deposits must meet specific legal criteria to be classified as reserves.

**resource** – a published estimate of the amount of naturally occurring metal, gemstone, or other mineral substance in a mineral deposit, which is present in an amount that could allow for economic extraction of the material in the future. Classifying a deposit as a resource indicates that a company has moderate confidence in the quantity and quality of ore in that deposit, but that more exploration is needed to consider it a reserve. Mineral deposits must meet specific legal criteria to be classified as resources.

**shear** – a type of deformation resulting from forces within the earth that cause parts of a rock mass to stretch, compress, or fracture. This deformation can form shear zones, bodies of rock with many parallel fractures that can be good hosts for hydrothermal mineral deposits.

**sulphide** – a group of minerals that all contain the element sulphur. This group includes a large number of metal-bearing minerals that are sources for metals such as iron, zinc, and copper and are commonly referred to as economic minerals. Sulphide deposits can be massive (minerals are concentrated over small areas) or disseminated (minerals are distributed over large areas).

**MAP NUMBER (PAGE)** Bold project number and name signifies major or advancing project.


ADAMERA MINERALS CORP.
185 Amaruk (28, 29)
246 Amaruk Gold (28, 29)
693 Amer Lake (42, 43)
543-545 Angikuni Lake (42, 43)
543 Esker (42, 43)
248 Halkett Inlet (28, 29)
546 Mallery Lake (41, 43)
548 Nowyak (41, 43)

ADVANCED EXPLORATIONS INC.
727 Anik (55)
853 Roche Bay (53)
854 Tuktu (53)

AGNICO-EAGLE MINES LIMITED
**521** **Meadowbank Mine** (13, 34)
**522** **Meliadine** (13, 35)
694 North Thelon (Agnico-Eagle Option) (13, 42)

ANCONIA RESOURCES CORP.
400 ATLAS (32)
549 RB (42)

**AREVA RESOURCES CANADA INC.**
**673** **Kiggavik** (39)

ASTON BAY HOLDINGS
700 Storm (46)

AURA SILVER RESOURCES INC.
429 Greyhound Lake (41, 43)

BAFFINLAND IRON MINES CORPORATION (ARCELORMITTAL S.A., IRON ORE HOLDINGS LP)
**852** **Mary River** (13, 52)

BITTERROOT RESOURCES LTD.
524 Windy Gold (37)

BLUESTONE RESOURCES INC.
488 Nanuq North (41, 43)

CACHE EXPLORATION INC.
666-668 Nunavut Rare Earth (42, 43)

CAMECO CORPORATION
670 Aberdeen (38)
698 Nueltin Lake (42)
671 Turqavik (38)

CANADA COAL INC.
730, 731 Nunavut Coal (Fosheim Peninsula, Vesle Fiord) (47)

CANADIAN NORTH RESOURCES AND DEVELOPMENT CORP.
639 Ferguson Lake (41, 43)

CANADIAN OREBODIES LTD.
851 Haig Inlet (13, 51)

CANZINCO LTD. (BREAKWATER RESOURCES LTD.)
728 Nanisivik (55)

COMMANDER RESOURCES LTD.
848, 849 Baffin Island Gold (Bravo Lake, Qimmiq) (13, 55)
700 Storm (46)

DAEWOO INTERNATIONAL CORPORATION
**673** **Kiggavik** (39)

ELGIN MINING INC.
232 Lupin Mine (26)
233 Ulu (26)

FORUM URANIUM CORP.
694-697 North Thelon (Agnico-Eagle Option, Inuit Owned Lands, Kiggavik North, Kiggavik South) (13, 42, 43)
669 Nutaaq (42, 43)

GLENCORE XSTRATA PLC
128 Gondor (28, 29)
**100** **Hackett River** (20)
N/A Musk (20)
101 Wishbone (20)

HORNBY BAY MINERAL EXPLORATION LTD.
399 Coppermine (28, 29)

HUNTER EXPLORATION GROUP
788 Aviat (55)
488 Nanuq North (41)

JCU EXPLORATION (CANADA) CO. LTD.
**673** **Kiggavik** (39)

KIVALLIQ ENERGY CORPORATION
672 Angilak (13, 38)

MMG RESOURCES INC.
128 Gondor (28, 29)
102 Hood (21)
**103, 104** **Izok Corridor (High Lake, Izok Lake)** (13, 21)

NEXGEN ENERGY LTD.
699 Thelon Basin (42, 43)

NORTH ARROW MINERALS INC.
188 Hammer (28)
460 Luxx (32)
761 Mel (50)
249 Oro (28, 29)
489 Qilalugaq (41, 43)

NORTH COUNTRY GOLD CORP.
222-226 Committee Bay Gold (Anuri-Raven, Four Hills-Cop, Inuk, Three Bluffs, West Plains) (24)

NORTHQUEST LTD.
523 Pistol Bay (36)

NUNAVUT RESOURCES CORP.
231 Itchen Lake (26)

NUNAVUT TUNNGAVIK INC.
672 Angilak (13, 38)

PEREGRINE DIAMONDS LTD.
760 Chidliak (48)
487 Nanuq (41, 43)
488 Nanuq North (41)
789 Qilaq (55)

PROSPERITY GOLDFIELDS CORP.
520 Kiyuk (33)

RIDGEMONT IRON ORE CORP.
579 Maguse River (42, 43)

ROCHE BAY PLC
853 Roche Bay (53)
850 Fraser Bay (50)

SABINA GOLD & SILVER CORP.
**220, 221 Back River (George Lake, Goose Lake)** (22)
234 Wishbone Gold (27)

SHEAR DIAMONDS LTD.
189 Jericho Mine (28, 29)

STARFIELD RESOURCES INC.
639 Ferguson Lake (41)

STORNOWAY DIAMOND CORPORATION
788 Aviat (55)
188 Hammer (28, 29)
489 Qilalugaq (41)

TECK RESOURCES LIMITED
729 Polaris Mine (55)

TMAC RESOURCES INC.
247 Elu Belt (28, 29)
227- 230 Hope Bay (Boston, Chicago, **Doris**, Madrid) (13, 24)

TRANSITION METALS CORP.
231 Itchen Lake (26)

URU METALS LTD.
698 Nueltin Lake (42, 43)

VALE CANADA LIMITED
701 West Melville (13, 46)

WEST MELVILLE METALS INC.
850 Fraser Bay (50)

Slinging core at sunrise, Kiyuk Lake camp – *Courtesy of Prosperity Goldfields*

# DISCOVER

## THE GEOSCIENCE OF NUNAVUT THROUGH THREE INTERACTIVE TOOLS:

### EXPLORATION OVERVIEW

THE ONLINE AND E-BOOK VERSIONS OF THIS ANNUAL PUBLICATION OF EXPLORATION ACTIVITIES THROUGHOUT NUNAVUT

### REFERENCES

A DOWNLOADABLE LIBRARY OF SCIENTIFIC PUBLICATIONS, MAPS AND DATA

### SHOWINGS

FOR BROWSING THE MINERAL OCCURRENCES DATABASE WITH LINKS TO SUPPORTING REFERENCES

## www.NunavutGeoscience.ca

**THE MOST AUTHORITATIVE STOP FOR NUNAVUT GEOSCIENCE INFORMATION.**

NUNAVUTGEOSCIENCE.CA